

**ENVIRONMENTAL PROCESS IMPROVEMENT  
FEASIBILITY STUDY  
AND  
DEMONSTRATION PROGRAM**

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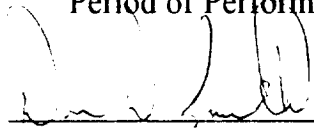
**Final Report**

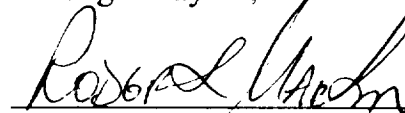
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**30th Space Wing Environmental Management Office  
Vandenberg AFB, California**

**Santa Barbara Air Pollution Control District  
Santa Barbara, California**

# ABSTRACT

This report is the final product of an environmental study conducted by Western Commercial Space Center, Inc. under contract to Tennessee-Calspan Center for Space Transportation and Applied Research. The purpose of this investigation is to accurately document the current environmental and permitting processes associated with commercial space launch activity at Vandenberg AFB, and make recommendations to streamline those processes. The particular areas of interest focus on: identifying applicable Federal, State, and Local laws, Department of Defense directives, and Air Force regulations; defining the environmental process on Vandenberg AFB and how it relates with other agencies, including Federal and State regulatory agencies; and defining the air quality permit process.

Study investigation results are applied to an example Pilot Space Launch Vehicle (PSLV) planning to launch from Vandenberg AFB. The PSLV space hardware is analyzed with respect to environmental and permitting issues associated with vehicle processing, facilities required (existing or new), and launch. The PSLV verified the earlier findings of the study and gave insight into streamlining recommendations.

This study includes an effort to develop and demonstrate software which could be used in a "paperless" air quality permitting system. A second demonstration involves developing a scheme to more quickly write environmental reports such as an Environmental Assessment and Environmental Impact Statement.

There are five streamlining recommendations resulting from the research. Two recommendations involve education and training of users on the environmental process through the development of a user handbook. During this training, the commercial user will learn about environmental laws, regulations, and processes. With this knowledge, the commercial user will be better able to manage the environmental aspects of a project. Since many users share the same types of environmental problems and issues, a Commercial Environmental Working Group is recommended to provide a method of sharing and discussing problems with Vandenberg AFB and other regulatory agencies. Lastly, computers offer a possibility to support streamlining efforts and improve communications between commercial users and regulatory agencies.

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# **PART I: INTRODUCTION AND BACKGROUND**

## **SECTION 1.0 INTRODUCTION**

# **PART I: INTRODUCTION AND BACKGROUND**

## **1.0 INTRODUCTION**

### **1.1 Background**

Prior to 1980, the United States (US) government sponsored most space programs. As the international commercial space launch industry grew, large US aerospace firms responded slowly to aggressive foreign competition - lucrative government programs generated enough business. The result of a decade of foreign domination of the commercial space market is a US space industry incapable of achieving reliable, low cost, commercial access to space. By contrast, the international competition providing launch services is cost effective, responsive, and enjoys a modern infrastructure. With its state-of-the-art launch system and spaceport, industry leader Arianespace controls over 50% of the international commercial launch market.

Over the past five years, the US commercial space industry has started to develop as a competitive alternative to a foreign-dominated industry. One of the biggest challenges in achieving a successful US commercial space industry is to streamline launch processes and reduce costs. The complexities and uncertainties associated with commercial launch services require total integration across all levels of government and within industry to streamline, modernize, and provide incentives for enhancing US competitiveness.

Currently, foreign competition provides customer services at substantially reduced rates over US companies. The US philosophy of developing space hardware, processing the hardware for launch, and launch services must be streamlined to reduce the launch costs. As streamlined processes become a part of the new culture, US companies will begin to successfully compete in the international marketplace.

One of the critical areas which needs streamlining is the environmental and permitting process. Commercial space companies, interested in efficient and cost-effective operations, are required.

by law, to comply with a large, bureaucratic environmental and permitting process which can be both time consuming and expensive. Currently, the process of obtaining approval to perform even simple space operations may prove difficult and constraining to commercial companies.

In April 1993, Western Commercial Space Center, Inc. (WCSC) submitted a detailed technical and cost proposal to the University of Tennessee - Calspan Center for Space Transportation and Applied Research (CSTAR) demonstrating methodology and capability to accomplish goals to alleviate difficulties in the environmental and permitting processes for launch users at Vandenberg Air Force Base (AFB). Contract 9310 was awarded and work on the project commenced on June 29, 1993.

## **1.2 Purpose**

WCSC and CSTAR have determined the purpose of this study is to investigate the environmental and permitting processes at Vandenberg AFB, and determine ways of streamlining the time and effort involved with the system. There is no attempt in this study to discredit or suggest changes to the established Federal, State, Local, or Vandenberg AFB laws and regulations which address environmental and permitting issues. The focus of this study is to document the environmental and permitting processes and determine where the system may be streamlined and improved to allow DOD and commercial users at Vandenberg AFB to benefit from increased efficiency.

Until recently, the Department of Defense (DOD) was the sole user of the Vandenberg AFB polar launch services. Today the DOD is sharing the launch support resources at Vandenberg AFB with commercial users. However, unlike the DOD, the commercial user does not have large budgets to accomplish its objectives in the competitive environment of commercial space.

The environmental and permitting processes are essential aspects of accomplishing space launch operations at Vandenberg AFB. In fact, the environmental process is often a critical path to begin operations, and may bring a program to a halt if environmental concerns are not mitigated. Furthermore, the time and effort to mitigate environmental concerns and obtain the necessary permits can cost the user a significant amount of time and money. US commercial space companies find the environmental and permitting processes restrictive, time-consuming, and expensive. If commercial space operator concerns are not addressed, there is a real possibility these US companies will be forced to look elsewhere to launch their polar orbiting satellites.

### 1.3 Goals and Objectives

The present environmental assessment process is complex and requires a substantial effort to understand even for people who work in the field. Environmental and permitting laws and regulations contain many overlapping requirements which reflect the history and complexity of the legal and institutional developments. Processes are often subjective which makes it difficult for users to accurately predict milestone dates for meeting program schedules. These processes are generally not systematic or user-friendly, with some exceptions, and often require substantial program revisions and/or large extra expenditures along the way to successfully start up a launch program.

Development of entrepreneurial commercial space operations in the United States will require streamlining and improvement of these approval processes for several reasons. First, the present environmental process has a big influence on the development of new commercial space programs within the US. Second, largely as a consequence, new commercial space launch programs are developing overseas instead, since foreign competition has demonstrated efficiency and low costs. The goal of this study is to find ways to simplify the environmental assessment and permitting processes for DOD and commercial space launch users. This simplification of the environmental and permitting processes is crucial to success of US commercial space ventures.

This project identifies and defines the required environmental approval processes at Vandenberg AFB. In particular the critical path steps, procedures of highest uncertainty, and greatest opportunities for improvement and streamlining of the process are identified. Specific streamlining methods and techniques are defined, developed, and demonstrated. In addition, working relationships between environmental agencies are provided, and strategies for consummating streamlining improvements are pursued as a part of this study.

The specific goals of this study are to:

- Define and streamline the end-to-end environmental processes at the Federal, State, County, and Vandenberg AFB levels required to support DOD and commercial space activities at Vandenberg AFB.
- Reduce time required for the environmental approval process.

- Encourage commercial space operations around Vandenberg AFB by making the environmental process more communicative, productive, predictable, and efficient.
- Consummate agreements between Vandenberg AFB and County officials regarding streamlined environmental licensing processes.

The specific objectives of this study are to:

- Identify and demonstrate the feasibility of reducing environmental approval timelines for DOD and commercial space operations.
- Identify and demonstrate the feasibility of a "paperless" air pollution permitting process.
- Demonstrate the feasibility of using computers and software to easily develop Environmental Impact Statements for operations at Vandenberg AFB.
- Demonstrate the feasibility of consummating, draft and/or final, agreements between Vandenberg AFB and County officials regarding streamlined environmental processes in support of Vandenberg AFB space operations.

#### **1.4 Project Task Description**

This study defines the requirements and identifies methods for streamlining the increasingly cumbersome and costly environmental approval process for DOD and commercial users at Vandenberg AFB Western Range (WR). The contract identified six tasks to accomplish the project objectives:

1. Develop Systems Concepts
2. Determine Payload/Launch Vehicle Operation Processes
3. Identify Environmental Licensing Processes
4. Define the Environmental Processes
5. Consummate Agreements Among Authorizing Parties
6. Perform a Demonstration Program

The first three tasks define the environmental system and examine those existing plans, policies, laws, procedures, and regulations driving programs to obtain approvals for launch activities. All users of the WR must satisfy a common set of criteria before operations may commence. The source of the difficulty is with Federal and State statutes and regulatory requirements, which must be adhered to by Santa Barbara County and Vandenberg AFB regulators.

Once applicable environmental licensing regulations are understood, the approval process flow is documented and all reports, forms, and authorities are charted with time estimates to perform each step of the process. Steps that can be streamlined are highlighted for improvement. As duplications, inefficiencies, or unnecessary tasks are found, they will be highlighted for resolution.

Information gathered about the permitting and licensing process is used to create strategies for developing agreements. Interviews and discussions were held directly with those officials responsible for decisions affecting implementation of the process. If specific instances are discovered where a process may be improved, negotiations were conducted to promote the change.

The final task will demonstrate a user-friendly, automated air pollution permitting process. The demonstration will show use of computer-automated databases that will expedite issuance of County permits for devices that emit air pollutants. Additionally, the feasibility of implementing a modular computer database for developing an Environmental Impact Statement (EIS) for Vandenberg AFB is also demonstrated.

The following are descriptions of the six tasks for this study, and a summary of the WCSC approach taken to accomplish the effort in each area:

#### Task 001 Develop System Concepts

The Statement of Work (SOW) requires description of a hypothetical launch vehicle that WCSC could launch from the Western Range. The vehicle selected is a two-stage rocket using two Castor 120<sup>TM</sup> motors, four strap-on Castor IV<sup>TM</sup> motors, a Transfer Orbit Stage (TOS) upper stage, and a NOAA METSAT class satellite. This definition will drive requirements for facility

modifications, launch vehicle and satellite vehicle processing, preparations for launch, launch, and post-launch activities.

#### Task 002 Determine Payload/Launch Vehicle Operation Processes

In order to ensure that all levels of launch base integration that may affect the environmental approval process are included for consideration, a brief overview of the total process of integrating a commercial pilot space launch vehicle (SLV) program is required. (SLV is the combined launch vehicle and satellite vehicle.)

A description of the SLV and the operational concept is covered to determine which of the environmental approval loops applies to the pilot scenario. The overall SLV processing activity is systematically organized into three phases: User Requirements Definition, Requirements and Identification Response, Modifications and Operations. A detailed analysis of each phase identifies specific activities, many of which are of environmental concern.

#### Task 003 Identify Environmental Licensing Regulations

All of the known required environmental regulatory and approval processes are identified. The pertinent licenses, permits, approvals, laws, regulations, agencies, and procedures are identified and documented. Details are tabulated in a comprehensible database format.

#### Task 004 Define the Environmental Processes

The sequence and flow of procedures are determined and documented for as much of the processes as possible. These have been included in a computerized flowchart which shows products and approval agencies. Times required for individual processes have been obtained for Air Force procedures. Steps on the critical path, and those of highest uncertainty, are also identified. Certain steps, and types of processes are identified for improvement/streamlining as a result of the study investigation and interviews with County and Vandenberg AFB environmental officials.

## Task 005 Consummate Agreements Among Authorizing Parties

Process identification and streamlining leads to establishing new ways of doing business. The agreements between the County, Vandenberg AFB, and WCSC (representing commercial users) is an on-going effort from this study. While the major goal is to obtain firm agreements of streamlining the environmental processes, agreements to continue working towards increased efficiency is considered a good measure of success in this area.

## Task 006 Perform a Demonstration Program

Two principal computer facilitation methods are discussed that will significantly aid in implementation of additional streamlining and improvement techniques. Subcontractors on this study have developed rudimentary state-of-the-art automated electronic systems for permitting approval processes and other computer-assisted aids to the environmental impact assessment process. The ultimate goal of these computerized tools is to enable the system to be paperless and electronically transmitted.

### 1.5 Scope of Report

Development of an understanding of the environmental and permitting processes is approached in this study in a logical sequence: first an understanding of the laws and regulations is reviewed, then a typical launch vehicle and its components and interfaces is defined, and, finally, linking the two by showing which of the environmental processes are involved in the pre-launch requirements definition and response. An outgrowth for a better understanding of the overall process are several levels of process streamlining and agreements on both the current process and any modifications of the process due to streamlining. Because of the immense amount of material applicable to the process, computerization may be a natural step.

The results of this CSTAR-sponsored study is only the beginning of identifying and improving the environmental processes. Necessarily, there is continuing interaction in the definition and demonstration of the environmental system. The diagram shown in Figure 1.1 shows the current efforts of this study and the WCSC viewpoint of how the different tasks of this study (identified by circled chapter numbers) interact with each other. The diagram also shows the on-going concept to continue evolving the environmental and permitting processes.

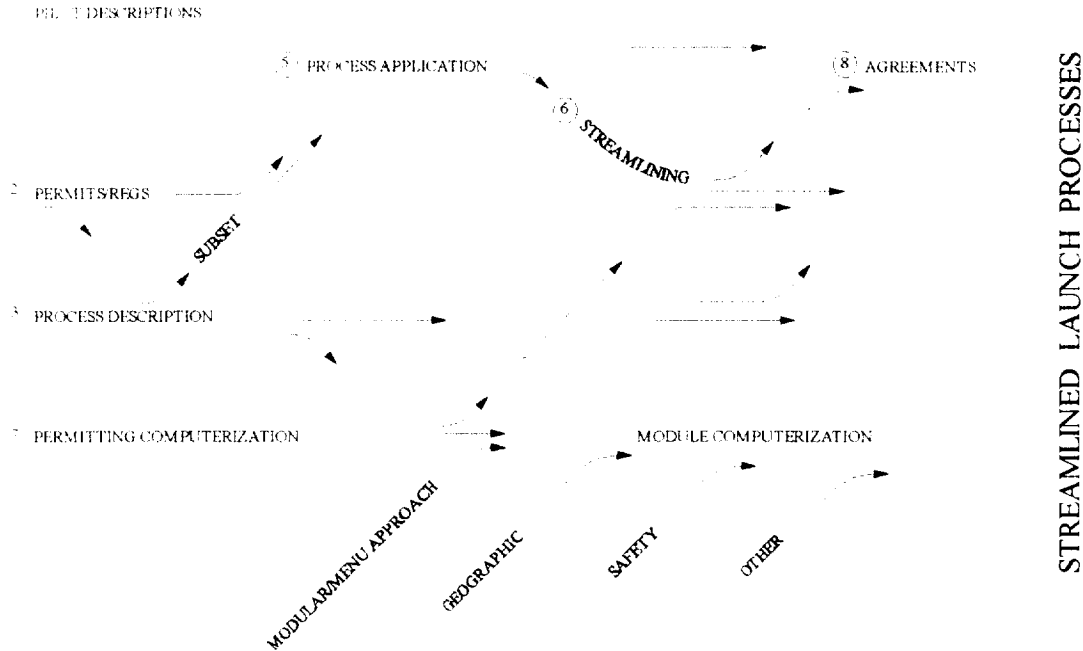


Figure 1.1 Environmental Process Study - Task and Idea Flow Chart

The "main stream" of the study is the definition of the environmental process (Section 3). Leading into the main stream is an understanding of the permits and regulations (Section 2). A typical launch vehicle system is defined in Section 4. Section 5 shows what portions of the overall environmental process are involved in the processing of the vehicle and its support system. The knowledge gained of the environmental process feeds into a computerization effort (Section 7). Conversely, the experience gained in the computerization process, together with the practical experience of the environmental tasks associated with the launch vehicle, lead both into further streamlining prospects (Section 6) and agreements (Section 8). Ultimately, all of the knowledge and tools will be expanded and applied to the enhancement of the commercial space effort at Vandenberg AFB, resulting in streamlined launch processes.

The diagram in Figure 1.1 indicates the completion of this CSTAR study concludes with agreements between the Base, County, and WCSC (representing commercial space users). The diagram also shows the continuation of defining the environmental process, streamlining the process, and using computerization to maximize efficiency in the environmental process.

As has already been pointed out, the environmental process is a key step towards accomplishing almost any space launch activity from Vandenberg AFB. The completion of this environmental study supports the entire Vandenberg AFB space community - DOD and commercial. The WCSC will continue to assist in facilitating efficient environmental and permitting process for commercial space activity at Vandenberg AFB.

The goals and objectives of this environmental study are addressed in five separate parts of the final report. The specific parts are shown in Figure 1.2 and described in the following paragraphs.

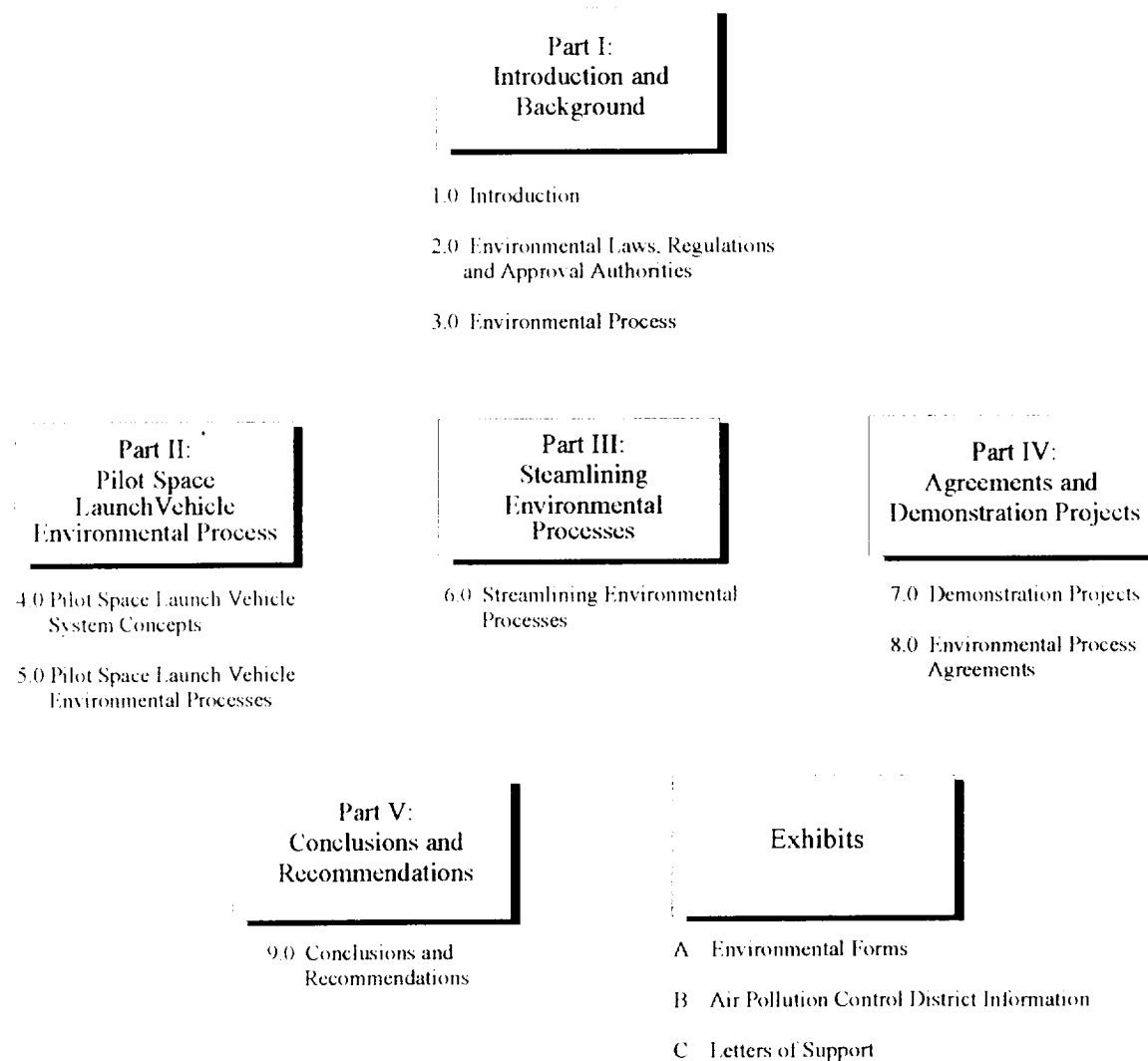


Figure 1.2 Environmental Process Improvement Feasibility  
and Demonstration Program Final Report

In Part I, the goals and objectives of the project are covered. The company participants in the study are described and their roles in the project are provided. The Federal, State, county and Vandenberg AFB environmental licensing regulations and approval authorities are reviewed which affect the environmental processes (Task 3). A background of the Vandenberg AFB environmental program is given and the environmental process as it currently exists is discussed (Task 4).

In Part II, a pilot space launch vehicle (PSLV) is used to describe the environmental approval processes and licensing requirements for a commercial user planning to launch from Vandenberg AFB. The PSLV is composed of two stacked Castor 120™ motors and four Castor IV™ strap-on boosters, a Transfer Orbit Stage (TOS™) upper stage motor and a National Oceanographic and Atmospheric Agency (NOAA) meteorological satellite (METSAT) class payload (Task 1). The environmental processes and licensing requirements are described for the pilot space hardware, associated ground support equipment (GSE) and processing facilities (Task 2).

In Part III, the areas of streamlining and improving the environmental process are recommended (Task 4). The critical path steps are discussed. Interviews with the 30 SW/ET and the Santa Barbara County officials are discussed in relation to streamlining the environmental processes.

In Part IV, the demonstration projects for a "paperless" air pollution permitting system are described (Task 6). This modern approach to streamlining the permit process is also used to show the possibilities of a generic environmental analysis process for developing Environmental Impact Statements (EIS). The completed and proposed agreements between government agencies for streamlining the environmental licensing processes and requirements for commercial space operations at Vandenberg AFB are given (Task 5).

In Part V, the conclusions of this study are provided and recommendations are given for implementing the results of the study and pursuing further studies.

The project financial statement is provided in the cover letter with this report.

## **1.6 Participating Organizations**

The WCSC is the contracting agency with CSTAR, and is the integration authority for the subcontracted work for this environmental project. WCSC has identified a team of WCSC

personnel and subcontractors to assist in completing the objectives of this environmental study. In the subcontractor selection process, WCSC hired only the most qualified and knowledgeable companies and people to accomplish the project. The subcontracted companies involved in this study with the WCSC consisted of:

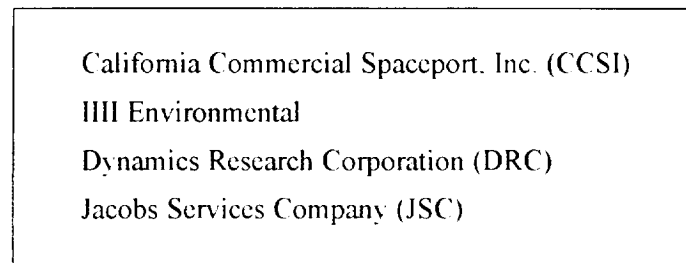


Figure 1.3 shows the subcontracted efforts and the interfaces between each company's efforts. WCSC provided the integration of the work between the subcontractors, and guided and modified the work efforts, as required, during the course of the project. A short description of the WCSC and each participating company is given in the following paragraphs with the study project roles.

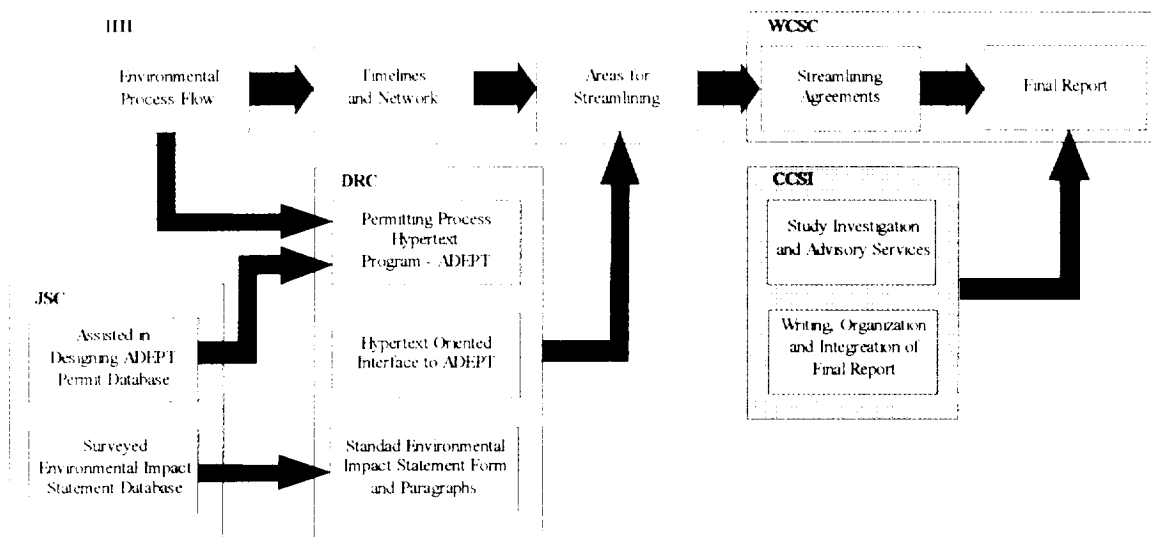


Figure 1.3 Subcontracted Study Efforts and Responsibilities

## Western Commercial Space Center, Inc.

Description: WCSC, incorporated in May, 1992, is a nonprofit corporation dedicated to the advancement of commercial space in the United States. The corporation leads a consortium of entities that have pooled their collective resources to promote low-cost access to space. The guiding principles of WCSC include high ethical, safety, and environmental standards. The corporation is unbiased towards the competitiveness between the consortium members, and protects each member company's proprietary information. WCSC is strongly supported at the grass roots level by the local community, State of California, and the 30 SW, Vandenberg AFB. The goals of WCSC are to:

- Stimulate and sustain further development of US space related activities.
- Strengthen the US competitive position within the international space arena.
- Sponsor educational programs to ensure the future space work force can meet the requirements of the work place.
- Encourage commercial space programs requiring access to polar orbit.
- Advocate environmental and safety responsibility for commercial space activity.
- Establish community ownership of commercial space for Vandenberg AFB.
- Establish team ownership among consortium members.

WCSC possesses extensive management capabilities and engineering expertise. WCSC members have experience with processing and launching boosters such as the Space Shuttle, Titan, Atlas, Delta, the Peacekeeper missile, and the Agena. They have experience with satellite programs such as DOD classified payloads, Defense Meteorological Satellite Program, National Oceanic and Atmospheric Administration, and LANDSAT. WCSC members have experience in management and integration, all areas of launch processing of space hardware and support areas such as environmental processes.

Project Role: WCSC managed and integrated all activities for this project. The specific roles of WCSC for this project are as follows: integrate project tasks; perform environmental work; schedule integration for multi-company use of the complex; and act as a subcontract administrator. WCSC provided the final study report.

## California Commercial Spaceport, Inc.

Description: California Commercial Spaceport, Inc. (CCSI) was incorporated in August 1993 at Lompoc, California. The company was formed to enable the WCSC to raise the matching private investment capital required by the Federal government in launch complex construction and other commercial spaceport projects at Vandenberg AFB. CCSI program directors have extensive experience in program management, business management, launch management, and all aspects of launch operations. CCSI personnel have a knowledge base - 118 years (cumulative) of hands-on experience dealing with government and military personnel who are presently the decision makers at all levels necessary to conduct business at Vandenberg AFB.

CCSI has a contract with WCSC that allows for the exclusive development, management, operation, and maintenance of WCSC (leased or licensed) government facilities on Vandenberg AFB. CCSI has teamed with twenty aerospace companies to form a consortium. The purpose of the consortium is to provide the technical and management skills necessary to address issues relating to the space launch systems, facilities, and processes. The CCSI consortium is part of a public/private partnership with WCSC, the United States Air Force, and the State of California to create the California Commercial Spaceport - a network of streamlined processes and facility operations to allow low cost, responsive access to space.

Project Role: CCSI provides study investigation and documentation for the project. CCSI accomplished research and interviews with prominent environmental agency personnel. The company gave consultation and advisory services to the WCSC in completing the integration tasks, including the demonstration projects. The CCSI also accomplished writing, organization, and integration of the final report.

## IIII Environmental

Description: IIII Environmental started business operations in 1978 in New York, New York, responding to expanding client needs for special expertise in safety and environmental engineering, especially development of techniques, equipment and procedures to prevent and control pollution. Risk and environmental impact assessments are its primary business. Inspection, testing, and auditing of engineering systems complement the analytic work, providing hands-on experience to make assessments relevant to real-world commerce and industry. IIII Environmental's main business lines include:

1. Preparation of environmental and risk assessments, environmental impact statements, and permit applications for new commercial and public projects, including transportation terminals, hazardous materials manufacture and shipment, dams, petroleum pipelines.
2. Inspection, test, monitoring, and investigation of pipelines, tanks, and other systems to minimize accidents threatening human lives, health and environment.
3. Contingency planning and on-scene response management for accidents involving oil and hazardous materials.
4. Preventive techniques, equipment and procedures, to counter the threat of oil, hazardous materials and nuclear incidents, development of company procedures, government legislation, and regulations.
5. Research environmental and safety regulations and legislation, preparation of proposals and petitions for regulations or legislation.

**Project Role:** III Environmental provides environmental support for the project. III assisted in defining the environmental process flow, documents, forms and agencies for any approvals needed by a user. The flow chart is the baseline which was used to begin streamlining the processes. The company further defined the timelines associated with each of the steps in the processes above. These timelines are an output from a computer network of all tasks. This network was developed into a PC based program that is capable of producing a database of all task parameters. III accomplished interviews with Base and County environmental authorities to obtain a full understanding of the flow chart and the timelines associated with specific activities. A pilot space launch vehicle (SLV) was discussed in the interviews with the environmental agencies to determine the processes applicable to obtain approvals for the processing facilities, ground support equipment, and the flight hardware. III Environmental provided assistance in writing the final report.

### **Dynamic Research Corporation**

**Description:** Dynamic Research Corporation (DRC) has a wide range of expertise in launch processing and satellite control, software development, and integrated systems management. The company, based in Virginia, is under contract to the Air Force Space Command to reduce

Medium Launch Vehicle - III (MLV-III) launch costs by developing automated systems with commonalty. A similar launch study was accomplished for the Ballistic Missile Defense Organization.

*Project Role:* DRC developed and demonstrated the Automated Data-Driven Environmental-Approval Process Tool (ADEPT) hypertext software as a part of this study. ADEPT provides the beginning for establishing a "paperless" environmental process at Vandenberg AFB. The baseline software focuses on obtaining air quality permits from the APCD using computer interfaces, thereby speeding up the process for obtaining a County decision on an air quality permit request. The ADEPT software is designed to accommodate other databases, such as the modular/menu-driven computer Environmental Impact Statement (EIS) database also developed DRC. The modular/menu-driven software, developed as a display of concept, provides a user with a tool to more quickly write an EIS for a project on Vandenberg AFB. From existing EIS's, DRC compiled a set of standard EIS paragraphs for different areas on Vandenberg AFB and user requirements. DRC participated in demonstrating their ADEPT hypertext software and its capabilities for a "paperless" air permitting process and its compatibility with the EIS database to the Air Force, Santa Barbara County, and CSTAR officials.

### **Jacobs Services Company**

*Description:* Founded in 1947, Jacobs Services Company (JSC) is one of the largest engineering and construction firms in the nation, providing a full range of engineering, construction and consulting services in the environmental and hazardous waste field. JSC employs more than 3,400 professional and support personnel nationwide, including 450 environmental science and related disciplines. Their field trained staff has the Occupational Safety and Health Agency (OSHA) required health and safety training and is subject to a medical surveillance and exposure monitoring program. JSC serves clients through a network of offices across the country, including Santa Barbara County and Vandenberg AFB, CA.

*Project Role:* JSC assisted in developing the air quality permit software which integrated with the ADEPT software developed by DRC. JSC participated in the "paperless" air permitting demonstration effort as part of this study. JSC also surveyed previously released EIS reports for information used by DRC in developing the modular/menu-driven database.

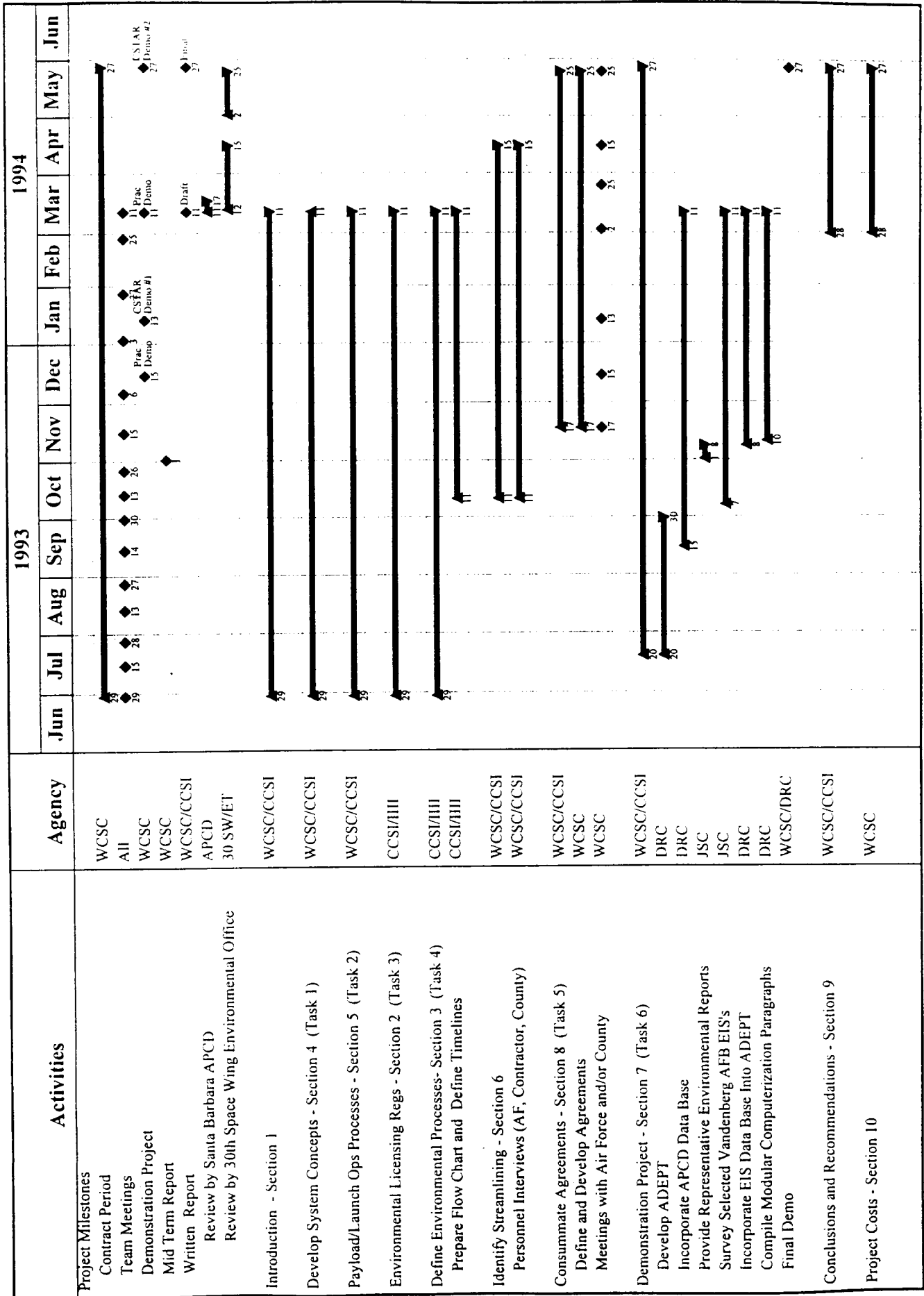
## 1.7 Project Schedule

The project schedule is shown in Figure 1.4. The original date for completion of the study was adjusted from January 15, 1994, to February 28, 1994, at the mid term briefing to CSTAR. In January, CSTAR and WCSC agreed to extend the project to March 31, 1994, to continue work on the demonstration project, accomplish further research on the environmental processes, and provide more time for final report coordination with the 30 SW/ET and the Santa Barbara County APCD. The final report also allowed time for a review by an independent environmental consultant to the CCSI.

The final report completion date was moved in late March to May 27, 1994, to allow additional time for the 30 SW/ET and the Santa Barbara County APCD to review the document, and for those comments to be incorporated.

# Figure 1.4 CSTAR Environmental Project Schedule

5/27/1994



## 1.8 References

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4. Thiokol Corporation. *Castor 120<sup>TM</sup> Motor Products Capabilities and Requirements Document*, TWR-33434 Rev C. November 19, 1993. Note: Castor 120<sup>TM</sup> is a trade mark of the Thiokol Corporation.
5. Thiokol Corporation. *Castor IV ATM Delta Strap-On Booster Motor*, TX-780, No Date.
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8. Major Victor J. Villhard. *Air Force Support for Commercial Space Launches*, 29th Space Congress Briefing. April 1992.
9. Interagency Resources Division, *Historical Preservation, Introduction to Federal Projects and Historic Preservation Law, Participant's Desk Reference: Sections 106 and 110 of the National Historic Preservation Act: 36 CFR § 60 and 36 CFR § 800*. Washington DC.
10. Santa Barbara Air Pollution Control District. *Air Pollution Control Permits*, APCD-101 Pamphlet.

## 1.9 Preparers of Report

This report was prepared by the WCSC with inputs from subcontracted companies and consultants. Comments to the report were also provided by the Santa Barbara County Air Pollution Control District (APCD) and the 30th Space Wing Environmental Management Office (30 SW/ET) on Vandenberg AFB. WCSC is appreciative to all the agencies and people who took an interest in the completion of this environmental study effort. The following people provided significant contributions to the writing and completion of this final report.

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## 1.10 Acronyms/Glossary

Acronym	Definition	Description
AAS	Attitude Adjust System	Hydrazine propellant system used to control orientation and attitude of the meteorological satellite.
ACHP	Advisory Council on Historic Preservation	Federal organization which advises the State Historic Preservation Office to implement National Historic Preservation Act.
ACOE	Army Corps of Engineers	Federal regulatory agency charged with oversight of Fish and Wildlife Coordination Act, implements Endangered Species Act.
ADEPT	Automated Data-Driven Environmental-Approval Process Tool	Window-driven hypertext software developed by Dynamic Research Corporation.
AF	Air Force	Understood.
AFB	Air Force Base	Understood.
AFR	Air Force Regulation	Governing Air Force document.
AHDP	Archeological and Historic Data Preservation	Provides for preservation of historic and archeological data under the Resource Protection Act.
AIRFA	American Indian Religious Freedom Act	Federal law to preserve and protect the religious freedoms of American Indians. 42 USC § 1996 (1978).
APCD	Air Pollution Control District	Santa Barbara County agency tasked with implementation of the Federal Clean Air Act.
APE	Area of Potential Effect	Area determined contain archeological or historically significant artifacts.
ARAR	Accident Risk Assessment Report	User report to Western Range Safety which identifies personnel and hardware safety risks for planned operations at Vandenberg AFB.

Acronym	Definition	Description
ATC	Authority to Construct	Air Pollution Control District permit required prior to construction which addresses planned emitting of pollutants from a stationary source.
BACT	Best Available Control Technology	Equipment which best controls emissions and meets air quality standards.
----	Biological Opinion	Letter from US Fish and Wildlife Service concerning impact to marine mammals and endangered species for a user project.
BMP	Best Management Practice	Understood.
CAA	Clean Air Act	Federal law requiring establishment of national air quality standards to protect public health. 42 USC § 7401 (1988).
CAAQS	California Ambient Air Quality Standards	Air Quality standards determined by California Air Resources Board.
CalEPA	California Environmental Protection Agency	State agency in charge of protecting waterways and regulating hazardous waste handling, storage, and disposal.
CARB	California Air Resources Board	State agency which works with the US Environmental Protection Agency to establish clean air standards for Air Pollution Control Districts.
CATEX	Categorical Exclusion	An EA approval which shows no significant impact on the human environment.
CCAA	California Clean Air Act	State law requiring compliance with defined air quality standards and establishing permit process with local Air Pollution Control District. California Statute Chapter 1568 (1988)

Acronym	Definition	Description
CCC	California Coastal Commission	State regulatory agency charged with oversight of the Federal Coastal Zone Management Act and the California Coastal Act.
CCSI	California Commercial Spaceport, Inc.	Spaceport operating company under WCSC.
CEQ	Council on Environmental Quality	Federal agency which establishes procedures for accomplishing the Environmental Impact Analysis Process.
CEQA	California Environmental Quality Act	California equivalent to National Environmental Protection Act; exceeds NEPA requirements.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	Federal act which provides for liability, compensation, cleanup, and emergency response for released hazardous substances into the environment, including toxic waste dump cleanup. 26 USC § 4611 <i>et seq</i> (1980).
CEWG	Commercial Environmental Working Group	Study proposal for environmental meeting of environmental regulators, permitting agencies, and commercial users.
CFR	Code of Federal Regulations	Understood.
CWA	Clean Water Act	Federal law which prohibits discharge of pollutants into navigable US waters, except in compliance with a National Pollutant Discharge Elimination System permit. 33 USC § 1251 <i>et seq</i> (1977).
CZMA	Coastal Zone Management Act	Federal law establishing a national policy for protection and preservation of the nation's coastal zone. 16 USC § 1451 <i>et seq</i> (1972).

Acronym	Definition	Description
DEIS	Draft Environmental Impact Statement	A draft of the EIS which is submitted for public comment prior to release of the final EIS to 30 SW/ET.
DOD	Department of Defense	Federal agency in charge of US defense.
DOI	Department of Interior	Federal agency authorized by Resources Protection Act to undertake recovery, protection, and preservation of archeological or historic resources.
DOPAA	Description of Proposed Action and Alternatives	User document submitted to 30 SW/ET prior to developing an EA which describes purpose, location, and description of proposed action, and alternatives to desired locations for proposed actions.
DTSC	Department of Toxic Substances Control	State organization which regulates hazardous waste handling and disposal under the California Hazardous Waste Control Law and the Federal Resource Conservation and Recovery Act.
EA	Environmental Assessment	User document submitted to 30 SW/ET providing summary of proposed action and alternatives, description of existing environment, potential impacts to human environment, and cumulative effects; submitted following submittal of AF Form 813 and DOPAA; result to EA is No action, FONSI, or EIS.
EIAP	Environmental Impact Analysis Process	User/regulatory process established by the Council on Environmental Quality to comply with National Environmental Protection Act.

Acronym	Definition	Description
EIS	Environmental Impact Statement	User document required by environmental agency for projects which include actions with significant environmental effects; explains effects and mitigation plans; result is provided in the Record of Decision.
EPA	Environmental Protection Agency	Federal agency charged with ensuring compliance with Federal environmental laws.
ESA	Endangered Species Act	Federal law intended to prevent further decline of endangered or threatened species of plants and animals. 16 USC § 1531 <i>et seq</i> (1973).
ESBM	Equipment Section Boost Motor	Contains the solid propellant in the Transfer Orbit Stage.
FEIS	Final Environmental Impact Statement	Final Environmental Impact Statement document submitted by user to 30 SW/ET.
FONSI	Finding of No Significant Impact	One of three possible outcomes of an Environmental Assessment submitted to 30 SW/ET; an Environmental Assessment approval.
GSE	Ground Support Equipment	Equipment used to process space hardware.
HAPS	Hazardous Air Pollutant Standards	A listing of the hazardous air pollutants controlled by air quality regulators.
HSF	Hypergolic Storage Facility	South Vandenberg AFB hypergolic temporary storage facility.
HSWA	Hazardous and Solid Waste Amendments	Amendments added to Resource Conservation and Recovery Act to place limitations on land disposal of hazardous wastes and regulation of underground storage tanks. (1984).

Acronym	Definition	Description
HTPB	Hydroxyl Terminated Polybutadiene	Solid fuel of Castor 120 <sup>TM</sup> , Castor IVA, and Transfer Orbit Stage.
HWCL	Hazardous Waste Control Law	California law which imposes obligation on facilities from generation to disposal of hazardous waste. Health and Safety Code § 25100 <i>et seq</i> (1972).
LAER	Lowest Achievable Emission Rate	Understood.
LV	Launch Vehicle	Liquid or solid rocket motors used to place a satellite in orbit; synonymous with Booster.
METSAT	Meteorological Satellite	NASA meteorological satellites, including NOAA and LANDSAT.
MMPA	Marine Mammals Protection Act	Federal law requiring protection of marine life. 16 USC § 1361 (1972).
MOA	Memorandum of Agreement	Agreement between parties.
MSDS	Material Safety Data Sheets	Identify material hazards and how to respond to safety concerns for these materials. These sheets are required for all materials stored or used on site.
NAAQS	National Ambient Air Quality Standards	Federal Environmental Protection Agency air quality standards for emissions of sulfur dioxide, nitrous oxide, carbon monoxide, particulate matter less than 10 microns diameter, ozone, and lead.
NAGPRA	Native American Graves Protection and Repatriation Act	Federal law which sets forth policy to protect certain human remains and cultural items of Native Americans. 25 USC §§ 3001 - 3002 (1990).
NASA	National Aeronautics and Space Administration	US space agency.

Acronym	Definition	Description
NED	No Effects Determination	Result if there is no effect of a particular environmental regulatory process.
NEPA	National Environmental Policy Act	Federal law requiring Federal agencies to analyze potential impacts of actions which could irreversibly affect the environment; the act is not regulatory. 42 USC §§ 4321 - 4347 (1970 - 1989).
NHPA	National Historic Preservation Act	Federal law designed to encourage identification and preservation of cultural and historic sites; establishes the National Register of Historic Places. 16 USC § 470 <i>et seq</i> (1966).
NMFS	National Marine Fisheries Service	Federal regulatory agency charged with protection of marine mammals and fisheries through Marine Mammals Protection Act and Endangered Species Act.
NOAA	National Oceanic and Atmospheric Administration	Federal agency which carries out consistency determinations for Federal projects.
NPDES	National Pollutant Discharge Elimination System	Clean Water Act permit required for discharge of pollutants from a point source into navigable waters of the US.
NPPA	Native Plant Protection Act	State law which protects certain plant-life. California Food and Agricultural § 80000 <i>et seq</i> (1967).
NRHP	National Register of Historic Places	Identifies a list of national historic sites which are protected by National Historic Preservation Act.
NSR	New Source Review	Pre-construction review program in non-attainment region with respect to air quality.

Acronym	Definition	Description
OSHA	Occupational Safety and Health Administration	Federal agency responsible for ensuring safe and healthy working conditions. The Department of Labor and the Department of Health, Education, and Welfare share responsibility for administering the law. 29 USC § 651 (1970).
PHSA	Public Health Service Act	Established in 1944 and administered by Food and Drug Administration. Sections apply to prevention of toxic substances in biological products. 42 USC § 201 <i>et seq</i> (1944).
PL	Public Law	Understood.
PRD	Program Requirements Document	User document submitted to WR which defines operational Range requirements necessary for user to accomplish processing actions on Vandenberg AFB.
PSD	Prevention of Significant Deterioration	Pre-construction review program in attainment region with respect to air quality
PSLV	Pilot Space Launch Vehicle	Space vehicle of this study consisting of two Castor 120 <sup>TM</sup> , four Castor IVA, Transfer Orbit Stage, and meteorological satellite.
PTO	Permit-To-Operate	Air Pollution Control District permit required after construction which allows user to emit defined quantities of pollutants from a stationary source.
RCRA	Resource Conservation and Recovery Act	Federal law designed to control the handling and disposal of hazardous substances. 42 USC § 6901 <i>et seq</i> (1976).

Acronym	Definition	Description
ROD	Record of Decision	Final approval for completion of an Environmental Impact Statement.
RPA	Resource Protection Act	Federal law which establishes archeological and historical data preservation policies. 16 USC § 470aa (1979).
RWQCB	Regional Water Quality Control Board	State agency charged with implementation of Federal Clean Water Act and other Environmental Protection Agency statutes.
SAF	Secretary of the Air Force	Air Force Office charged with oversight of wetlands protection on Air Force properties through Executive Order #11990, "Protection of Wetlands".
SARA	Super Fund Amendment and Re-Authorization Act	Reinforces Federal Comprehensive Environmental Response, Compensation, and Liability Act by providing extra funding to clean up specific toxic dump sites that are a threat to human health. PL 99-499 100 Stat/613 (1986).
SCAPE	Self-Contained Atmospheric Protective Ensemble	Propellant suit used by persons working with toxic propellants; suit accommodates an external oxygen source (portable or line) and communications.
SCDP	Source Compliance Demonstration Period	Temporary operation of equipment/facility for testing, calibration, and demonstration of compliance with conditions of Authorization to Construct permit. A Permit to Operate follows a satisfactory testing and demonstration period.

Acronym	Definition	Description
SHPO	State Historic Preservation Office	State regulatory agency charged with oversight of National Historic Preservation Act. This office is also known as the Office of Historic Preservation.
SLC	Space Launch Complex	Launching location for space launches.
SLV	Space Launch Vehicle	The combination of the launch vehicle and satellite vehicle.
SV	Satellite Vehicle	Space vehicle placed in orbit by a launch vehicle.
TOS	Transfer Orbit Stage	Upper stage of Pilot Space Launch Vehicle.
TSCA	Toxic Substance Control Act	Federal Law controlling the handling and disposal of hazardous waste. 15 USC 2601 <i>et seq</i> (1976).
TVC	Thruster Vector Control	Propellant system used to control space vehicle orientations and attitude.
UDS	Universal Documentation System	Western Range Operations documentation system to receive and respond to user inputs for support.
USAF	United States Air Force	Understood.
USFWS	US Fish and Wildlife Services	Federal regulatory agency charged with oversight of Fish & Wildlife Coordination Act; implements the Endangered Species Act.
WCSC	Western Commercial Space Center	California-based, non-profit company dedicated to the advancement of US commercial space program.
WQM	Water Quality Management	State water quality plan which includes non-point source management and control.

Acronym	Definition	Description
WR	Western Range	Controlling agency for accomplishing launch processing operations from Vandenberg AFB.
WRCB	Water Resources Control Board	State agency charged with oversight of "Regional Boards". Maintains decision authority for Section 401 Certification program.
WRR	Western Range Regulation	Governing Western Range document.
30 SW	30th Space Wing	Air Force Space Command sponsor at Vandenberg AFB.
30 SW/CEG	30th Space Wing Civil Engineering Group	Vandenberg AFB agency which is the single point of contact for land and facility usage, and provides environmental support to 30 SW/ET.
30 SW/CC	Commander, 30th Space Wing	Person in charge of activities on Vandenberg AFB.
30 SW/CV	Vice Commander, 30th Space Wing	Person in charge of approving environmental assessment on Vandenberg AFB; the Chairman of the Environmental Protection Committee.
30 SW/ET	Vandenberg AFB Environmental Management Office	Vandenberg AFB agency which is the single point of contact with regulatory agencies for Base activities.
30 SW/SE	30th Space Wing Safety Office	Vandenberg AFB agency which is the single point of contact for safety.
30 SW/XP	30th Space Wing Plans and Programs Office	Vandenberg AFB agency which is the single point of contact for commercial users. Facilitates the integration of user requests with other Base agencies.

SECTION 2.0  
ENVIRONMENTAL LAWS,  
REGULATIONS, AND  
APPROVAL AUTHORITIES

## 2.0 ENVIRONMENTAL LAWS, REGULATIONS, AND APPROVAL AUTHORITIES

### 2.1 Environmental Issues

Prior to presenting the environmental regulations, a summary of environmental issues and general processing activities which are affected by these issues are provided in the following sections. Additionally, the relationship of the environmental process and safety concerns is also described.

Environmental laws and the supporting regulations are driven by:

- Environmental concerns.
- Historical events, activities, or accidents that have provoked these concerns.
- Personalities playing important roles in development of legislation and regulations.

#### 2.1.1 Areas of Environmental Concern

The environmental and permitting processes are designed to protect human environment from unnecessary contamination and waste. Table 2.1 shows the principal areas of environmental concern which may require an environmental assessment and other agency approvals before conducting commercial launch operations at Vandenberg AFB:

Table 2.1 Principal Areas of Environmental Concern

Air Quality
Biological Resources
Cultural Resources
Socioeconomics
Earth Resources
Hazardous Materials/Hazardous Waste Management
Solid Waste Management
Water Resources
Health and Safety
Transportation
Land Use
Utilities

Each area of environmental concern in Table 2.1 is described in the following paragraphs. The definitions used below are generally and uniformly understood as presented. Specifically, these headings are used to describe potential impacts, significant impacts and mitigation measures in the environmental approval process required by the National Environmental Policy Act (NEPA) of 1969 (Section 2.2.1).

***Air Quality*** is concerned with climatology/meteorology and the quality of air in the region and air basin. The environmental impact of an operation includes exhaust and evaporative products from fixed and mobile sources. How these products are or may be dispersed in the area is an important factor in environmental approval decisions. Wind patterns, fog, temperature fluctuations, seasonal variations, and precipitation affect the resulting air quality, as products exhaust or evaporate into the atmosphere. Air quality emissions are evaluated from many aspects. First with respect to attainment of ambient air quality standards (Federal and State), secondly with respect to operational and accidental releases of toxic emissions, and finally with respect to acute and long term risks of toxic emission exposure through multiple exposure pathways. Computer simulations are often used to model the likely dispersion of products under varying conditions.

***Biological Resources*** refer to vegetation, terrestrial wildlife, threatened and endangered species, marine mammals, each of their habitats, floodplains, wetlands and vernal pools. Concerns for biota include losses ('take' of a species) or permanent disturbance of habitats, aquatic organisms, federal endangered species, and disturbance during breeding seasons.

***Cultural Resources*** include archeological areas and historic buildings and areas. Historic sites also include certain structures deemed of significance in the "Cold War."

***Socioeconomic*** impacts include effects on local population associated with increased stress on housing and personal services.

***Earth Resources*** include the physiology and topography of the area, the soil composition and geology, including seismic concerns. New facilities and road construction typically cause effects and impacts in this area, directly as natural features such as hills or dunes are changed, or indirectly as consequent erosion..

***Hazardous Materials/Hazardous Waste Management*** addresses plans and procedures to comply with Resource Conservation and Recovery Act (RCRA, Section 2.2.1),

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, Section 2.2.1), and the California Health and Safety Code (Section 2.2.2). These regulations set standards and procedures for handling, transporting, treating and disposing of hazardous waste.

***Solid Waste Management*** is a concern since the content and amount of solid waste must fit into the capabilities of the planned landfill site to dispose of the refuse.

***Water Resources*** refers to the local area's hydrology and quantity and quality of surface and ground water. This area includes processes for wastewater management and rain water runoff. Additional effects and potential impacts are caused by the support of launch operations personnel, fire suppression, hazardous liquid fuels and oxidizers, and any other hazardous materials.

***Health and Safety*** is a part of the environmental process since construction and operation of a commercial (or government) facility affects the human environment, directly or indirectly causing accidents that result in human death and/or injury, and health or hygiene effects. The concerns include workers and/or the general public. The safety of machinery, buildings, practices and procedures, processing of hazardous commodities, disposal of hazardous materials, and noise are areas of concern for workers. This area of concern also includes safety of the launch vehicle, site support equipment and launch facility equipment, since accidents can cause losses of life or property, and damage to the environment. Noise affecting the local human population and the biota is also an environmental concern.

***Transportation*** refers to effects (changes in volume and patterns of traffic) the new facility, operation, etc. will have on the local transportation scheme, including roads, rail, etc. For example, new roads may be required for traffic, or existing roads may need to be re-designed to allow heavier load bearing capabilities. Van pools may be used to mitigate temporary effects.

***Land Use*** refers to the classification of land (similar to zoning in civilian communities) under the Vandenberg AFB Comprehensive Plan. Land use determinations generally include considerations of public and worker safety, and environmental protection.

***Utilities*** include effects and/or impacts on the Base's electrical, water, wastewater, and communications resources.

Now when the principal environmental concerns have been systematically identified, defined, and discussed, we are better prepared to see how certain commercial space launch activities require environmental assessment or other approvals.

#### 2.1.2 Activities Requiring Environmental Analysis

Activities listed in Table 2.2 are general processes that may require an environmental assessment and/or other agency approvals before conducting launch operations at Vandenberg AFB:

Table 2.2 Activities Requiring Environmental Assessment/Approval

Modifications, Construction
Reconfiguration
Cleaning
Fluid Handling
Battery Operations
Ordnance Operations
Launch
Launch Pad Refurbishment

These activities require environmental assessment because of specific environmental concerns associated with them. We can understand these concerns because they derive from:

- Waste effluents or residuals that can impact air quality, water quality, public safety.
- Potential accidents affecting worker or public safety.
- Necessary disturbance of environment and/or resources, both natural and/or public.

Each above area requiring environmental assessment is described in the following paragraphs.

**Modifications** include construction activities for facilities and ground support systems with regard to the processes used and the kind and extent of encroachment upon the physical environment.

*Reconfiguration* is concerned with the substances used during the activity. This area also includes spray booths, sand blasting, propellant scrubbers, etc.

*Cleaning* includes the substances used during any cleaning operations whether on the pad, in the processing facility or in Base Laboratories.

*Fluid Handling* includes propellants, roll control fluids and thrust vector control (TVC) fluids.

*Battery Operations* refer to any battery operation including filling, activating and installation.

*Ordnance Operations* include storage, handling, installation and disposal of ordnance equipment such as squibs, explosive bolts, separation systems and destruct systems.

*Launch* includes the generation of noise at liftoff and ascent of the SLV and terminations resulting in ground impact and fire.

*Launch Pad Refurbishment* includes any substances used during refurbishment of the launch pad following the launch of the SLV.

### 2.1.3 Environmental vs. Safety

The environmental process is inherently linked with systems safety. Since the environmental process is concerned with the effect any operation has on the environment, it is concerned with the possibility of failed hardware which releases vapors and liquids. The catastrophic situation includes explosions and fires which have increased potential for harmful effects on the environment. A catastrophic event could trigger further release of toxic materials into the atmosphere if steps are not taken to protect operations from impacting each other. For instance, a toxic propellant storage vessel would invite increased risk if it were unnecessarily located in close proximity of a solid rocket motor facility. If an accidental explosion resulted, the explosive force could also cause failure of the propellant storage vessel. While this situation is obviously a safety hazard, it is also an environmental concern. Therefore, the environmental process includes explosive safety reviews by systems safety personnel to develop and approve "qualitative distances" between operations to minimize safety as well as environmental concerns.

## 2.2 Environmental Laws and Regulations

The environmental and permitting process is governed by a strict set of Federal, State, County, DOD and Vandenberg AFB regulations. This section identifies the regulations and the approval authorities for each area of the environmental process. Table 2.3 shows the Federal, State, County, DOD, and Vandenberg AFB laws and regulations. In the following sections the laws and regulations are discussed at each level of government.

Table 2.3 Environmental and Permitting Laws and Regulations

Federal	State
National Environmental Policy Act (NEPA) Council on Environmental Quality (CEQ) Clean Air Act (CAA) Coastal Zone Management Act (CZMA) Clean Water Act (CWA) Resource Conservation Recovery Act (RCRA) Toxic Substance Control Act (TSCA) National Historic Preservation Act (NHPA) Archeological and Historic Data Preservation Act (AHDPA) American Indian Religious Freedom Act (AJRFA) Native American Graves Protection and Repatriation Act (NAGPRA) Endangered Species Act (ESA) Marine Mammals Protection Act (MMPA) Public Health Service Act (PHSA) Comprehensive Environmental Response, Compensation, and Liability Act (Super Fund) Super Fund Amendment and Reauthorization Act (SARA) Occupational Safety and Health Administration (OSHA)	California Clean Air Act (CAA) Toxic Air and Contaminants Law Air Toxics Hot Spots Information and Assessment Act California Hazardous Waste Control Law (HWCL) California Regional Water Quality Control Board (WQCB) Resolution 83-12 and Order 83-60 California Porter-Cologne Water Quality Act (WQA) California Endangered Species Act (CESA) California Native Plant Protection Act (NPPA) California Code of Regulations, Title 22, Division 4, Environmental Health
County	DOD and Air Force
Santa Barbara County Air Pollution Control District (APCD) Rules and Regulations	DOD 6050.1 (AF Environmental Directive) AFR 19-2 (AF Environmental Impact Analysis Process) AFR 86-1 (AF Construction Approval Process) AFR 55-31 (Site Survey Process) AFR 127-100 (Explosive Safety) AFR 127-1 (Launch Safety) VAFB TAB M-3 (VAFB Master Planning Process)

### 2.2.1 Federal Laws and Regulations

The following Federal Regulations may influence the environmental process depending on the project, planned location, and emissions.

National Environmental Policy Act (NEPA) of 1969  
42 USC §§ 4321-4347 (1970-1989)

NEPA requires Federal agencies to analyze the potential environmental impacts of major Federal actions and alternatives and to use these analyses as a decision-making tool on whether and how to proceed with the proposed action. Specifically, NEPA addresses environmental impacts on air, water, soils, biological, and cultural resources. NEPA is a regulatory act in that it has implementing regulation; it defines a process for regulation. NEPA defines the Environmental Impact Statement (EIS) which is required before non-reversible environmental actions are taken. The act was implemented by:

- Executive Order 11514, 42 USC § 4321.
- President's Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR), Part 1500 *et seq.*
- USAF Regulations 19-1, 19-2, 19-7, and 19-9, containing USAF directives for compliance with NEPA.

Determining "Conformity" of required Federal actions to State or Federal implementation plans, 40 CFR § 93 requires a determination of conformity of general Federal actions to the State Implementation Plan (SIP) for the attainment of National Air Ambient Air Quality Standards (NAAQS). A general action is considered very broadly and as long as Vandenberg AFB is a military base, any action on the facility may be considered a general action. To determine conformity, the proponent must estimate changes from the current emission baseline. This determination includes the quantification of direct, indirect, mobile and area sources. If the action produces greater than 100 tons of particulate matter (less than 10 microns) below the mixing altitude of 3,000 feet this violates the maximum air quality emission standard. The proponent must provide offsets and mitigations.

Council on Environmental Quality (CEQ)  
40 CFR §§ 1500 - 1508

The CEQ regulations establish procedures for accomplishing the Environmental Impact Analysis Process (EIAP). The CEQ establishes the Environmental Assessment (EA). A preliminary Environmental Impact Analysis can result in one of two possible alternatives: Categorical Exclusion (CATEX), or a requirement for an EA. There are three possible outcomes from an

EA: No Action (i.e., disapproved), Finding of No Significant Impact (FONSI), or a requirement for an EIS.

Clean Air Act (CAA)

42 USC § 7401 *et seq* (1988)

The CAA requires the US Environmental Protection Agency (EPA) to establish national and secondary ambient air quality standards as necessary to protect public health, with an adequate margin of safety, from any known or anticipated adverse effects of a regulated pollutant. The CAA also requires establishment of: (1) national standards of performance for new stationary sources of atmospheric pollutants; (2) emissions limitations for any new modified buildings; and (3) standards for emissions of hazardous air pollutants. In compliance with these requirements, EPA has issued primary and secondary National Ambient Air Quality Standards (NAAQS) for sulfur dioxide, nitrogen dioxide (NO<sub>2</sub>), carbon monoxide, particulate matter less than 10 microns diameter, ozone, and lead. Under the Clean Air Act, State and Local authorities were given primary responsibility for assuring that their respective regions attain the NAAQS. This provision also gave state and local agencies authority to enact more stringent ambient air quality. A recent amendment to the CAA is the "Conformity Rule" which became effective January 31, 1994.

The CAA plays an important role in California's air pollution control program. The CAA requires preparation and submission of state implementation plans for attainment of national ambient air quality standards by given target dates. The act also requires the state, acting through the air districts, to enact regulations sufficient to attain and maintain the Federal NAAQS. Hence State of California and County of Santa Barbara authority over air pollution control is Federally granted, and applies to Federal facilities such as Vandenberg AFB.

The CAA was enacted in 1963, amended in 1970 and 1977, and completely overhauled in 1990. CAA Amendments adopted in late 1990 brought about sweeping changes to the Federal CAA. Although these amendments require major changes throughout most of the country, it has limited impact for California, since some of the key provisions were modeled after existing California laws. An operating permit program is required under Title V of the new CAA, and 40 CFR § 70 regulations. The operating permit should contain all applicable emission limitations and operating conditions imposed by the State Implementation Plan (SIP) and Federal air programs. (Also refer to California Clean Air Act in Section 2.2.2 for further discussion on Title V.)

Coastal Zone Management Act (CZMA)  
16 USC § 1451 *et seq* (1972)

The CZMA, as amended, establishes as a national policy the preservation, protection from development, and, where possible, the restoration and enhancement of the nation's coastal zone. To carry out this policy, the Act encourages coastal states to develop Coastal Zone Management Programs. Section 304 of the Act excludes all Federal lands from the coastal zone. However, Section 305 requires Federal agencies that conduct activities, including development projects, which directly affect the state's coastal zone, to make sure that these activities are consistent, to the maximum extent practicable, with approved state Coastal Zone Management Programs.

Clean Water Act (CWA)  
33 USC § 1251 *et seq* (1977)

The CWA prohibits the discharge of pollutants from a point source into navigable waters of the US, except in compliance with a National Pollutant Discharge Elimination System (NPDES) (40 CFR Part 122) permit. Through administrative and judicial interpretation, the navigable waters of the US are considered to encompass any body of water whose use, degradation, or destruction would affect interstate or foreign commerce. This definition includes, but is not limited to, inter- and intra-state lakes, rivers, streams, wetlands, playa lakes, prairie potholes, mudflats, intermittent streams, and wet meadows.

Section 402 requires that the EPA establish regulations for issuing permits for stormwater discharges associated with industrial activity. A NPDES permit is required if activities involve the disturbance of more than five acres of land. The act delegates authority for enforcement to the (California) State Water Resources Board and, ultimately, to the Regional Water Quality Control Board (RWQCB). Other regulating agencies include the EPA, DOD-USAF, and the California Environmental Protection Agency (CalEPA).

The Clean Water Act was amended in 1987, adding Section 319, requiring states to assess non-point source water pollution problems and to develop non-point source pollution management programs with controls to improve water quality. Non-point sources involve items such as surface runoff from streets, runoff from agricultural activities, runoff from construction activities, or percolation from such sources into the groundwater. These revisions would require coordinating non-point source planning for proposed project activities with the WQCB.

Under Section 404, dredged or fill materials may not be discharged into waters of the US, including rivers, streams, wetlands, and playa lakes, by or on behalf of any Federal agency, other than the US Army Corps of Engineers (ACOE), without a permit issued pursuant to ACOE rules and regulations. Pursuant to 33 CFR § 320, in issuing such permits, the ACOE must consider the impact that such an activity would have on floodplains and wetlands in accordance to Executive Orders 11988 and 11990.

The Nationwide Permit 26 to Section 404 of the CWA covers discharges of dredged or fill materials that result in a loss of less than ten acres of waters of the US (including wetlands) that are isolated or located in headwaters. The term "headwaters" is not defined in the regulations but drainage ditches and their associated wetlands could be interpreted as headwaters. The ten-acre threshold includes not only those wetlands directly filled by discharge of dredged or filled materials, but any wetlands adversely affected by flooding, excavation, or drainage activities associated with construction projects. Impacts from the entire project must be considered in calculating whether or not the ten-acre threshold is exceeded. Discharges resulting in a loss of less than one acre may proceed without notification.

Resource Conservation and Recovery Act (RCRA)  
42 USC § 6901 *et seq* (1976)

The treatment, storage, and disposal of solid waste (both hazardous and non-hazardous) is regulated under the Solid Waste Act, as amended by the RCRA and the Hazardous Solid Waste Amendments of 1984. The RCRA was designed to control the handling and disposal of hazardous substances by responsible parties. Hazardous waste, as defined by the RCRA, is a "solid waste that may cause or significantly contribute to serious illness or death, or that poses a substantial threat to human health or the environment when improperly disposed. In this definition, a solid waste may be "liquid" if it has any of the following properties: "ignitability, corrosivity, reactivity, or toxicity." RCRA provides that States may apply to EPA for authorization to operate their own hazardous waste management programs in lieu of the federal RCRA program. The state program must be substantially equivalent to, and consistent with the federal program, and consistent with other state programs. In 1984, Congress added to RCRA the Hazardous and Solid Waste Amendments (HSWA) of 1984, primarily concerned with placing stringent limitations on land disposal of hazardous wastes and regulation of underground storage tanks.

### Toxic Substances Control Act (TSCA)

15 USC § 2601 *et seq* (1976)

TSCA authorizes the EPA to exercise coherent control over toxic substances by obtaining information, including the production, use, and health/environmental effects, of existing and new chemicals, and to take appropriate regulatory action against those substances presenting unreasonable risks. Manufacturers or processors of chemicals may be required to conduct tests and submit to EPA data on the effects and behavior of chemicals. By authority of Section 6 of the Act, the following chemicals are directly regulated by TSCA (40 CFR § 747, §§ 761-766):

- Metalworking fluids (mixed mono and diamides of an organic acid; triethanolamine salt of a substituted organic acid; and triethanolamine salt of tricarboxylic acid).
- Polychlorinated biphenyls (PCBs).
- Fully halogenated chlorofluoroalkanes.
- Asbestos.
- Benzo-para-dioxins/dibenzofurans.

### National Historic Preservation Act (NHPA)

16 USC § 470 *et seq* (1966)

The NHPA is the key Federal law designed to encourage identification and preservation of cultural resources. The act establishes the National Register of Historic Places (NRHP) to designate public or privately-owned resources. Properties which are not listed, but are considered eligible, are also protected. The Act requires coordination of Federal preservation efforts with State Historic Preservation Officer (SHPO). The Act sets forth the Section 106 review requirement, which establishes the Advisory Council on Historic Preservation (ACHP) and allows ACHP an opportunity to comment. Section 106 requires Federal agencies to take into account the effect of undertakings on properties included in, or eligible for, the NRHP. The Section 106 process involves the Federal agency, the SHPO, and often the ACHP.

### Resources Protection Act (RPA)

16 USC § 470aa *et seq* (1979)

The RPA addresses archeological and historic data preservation (AHDP). AHDP is directed towards the preservation of data that would otherwise be lost as a result of Federal construction

or other Federally-licensed or assisted activities. The RPA authorizes the Department of Interior (DOI) to undertake recovery, protection, and preservation of archaeological or historic data. If a Federal agency determines that a project may cause irreparable damage to archaeological resources, that agency is required to notify the DOI in writing.

American Indian Religious Freedom Act (AIRFA)  
42 USC § 1996 (1978)

This act sets forth Federal policy to preserve and protect the religious freedoms of Native Americans. The policy recognizes religious practices as an integral part of the culture, tradition, and heritage of Native Americans. Therefore, Native Americans are guaranteed the right of freedom to believe, express, and exercise their traditional beliefs which includes, but is not limited to, access to sacred sites, including cemeteries; use and possession of sacred objects; and freedom to worship through ceremonial and traditional rites.

Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)  
25 USC §§ 3001 - 3002 (1990)

This Act sets forth the Federal policy which addresses the rights of Native Americans to retain possession of certain human remains and cultural items with which they are affiliated. This law is applicable to any intentional excavations and/or unintentional discoveries which occur on Federal land. Prior to excavation of human remains and cultural items, or immediately upon their inadvertent discovery, potentially affiliated tribe(s) or organization(s) are to be consulted to ensure appropriate disposition of and control over the remains and objects. A draft of regulations implementing the law is currently in progress.

Endangered Species Act (ESA)  
16 USC § 1531 *et seq* (1973)

The ESA is intended to prevent further decline of endangered or threatened species of plants and animals and to restore these species and their habitats. Identification of endangered species is found in 50 CFR Parts 17 and 402. If a project may impact a threatened or endangered species or their habitats, a formal consultation with the US Fish and Wildlife Service (USFWS) must be conducted. Legal protection is afforded those plants and animals listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 7 of the

Act requires that a proposed major Federal action be evaluated by the USFWS and/or the NMFS for its potential to affect listed species or critical habitat. In compliance with the "Section 7 Consultation" process, the USFWS and/or NMFS evaluates a biological assessment prepared by the Federal agency proposing the action (such as new commercial user at Vandenberg AFB) and issues a "biological opinion" as to whether the proposed action is likely to jeopardize listed species or critical habitat.

Marine Mammals Protection Act (MMPA)

16 USC § 1361 (1972)

The MMPA offers protection similar to the Endangered Species Act to marine mammals. The Act authorizes the National Oceanic and Atmospheric Administration (NOAA), NMFS, to review proposed federal actions to assess potential impacts. Marine mammals also are included in Section 7 of the ESA and are part of the NMFS consultation process.

Public Health Service Act (PHSA)

42 USC § 201 *et seq* (1944)

Provisions of the Act are administered by the Food and Drug Administration (FDA). Some sections pertain to prevention of toxic substances in biological products.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Super Fund)

26 USC § 4611 *et seq* (1980), and

Super Fund Amendment and Re-authorization Act of 1986 (SARA)

PL 99-499, 100 Stat/613

CERCLA provides for the liability, compensation, cleanup, and emergency response for hazardous substances released into the environment, including the cleanup of inactive hazardous waste disposal sites. It includes provisions for reportable quantities, penalties, response authority, civil penalties and awards, employee protection, claims procedures, guidance for federal facilities, cleanup standards, and the National Contingency Plan. CERCLA provides that past and present owners of a contaminated site, as well as the generators and transporters who contribute hazardous substances to a site, shall be liable for all costs of removal or remedial action that is undertaken by the US government, a state, or any other person and for damages for loss of natural resources. SARA enacted extra provisions and reinforces CERCLA in providing extra funding for long-term remedial measures to clean up specific sites that are a threat to

human health and emphasizes use of treatment technologies, and meeting state requirements and standards of cleanup.

Occupational Safety and Health Act (OSHA) of 1970  
29 USC § 651 (1970)

The goal of OSHA is to assure safe and healthful working conditions, free of recognized hazards that could cause serious injury or death, for the working men and women in the nation. Employers must comply with the safety and health standards established under the act. Provisions of this act govern many aspects of the construction and operation of a proposed spaceport. Administration of this Act is the joint responsibility of the Department of Labor (Occupational Safety and Health Administration) and the Department of Health, Education, and Welfare (National Institute for Occupational Safety and Health). OSHA now has primary responsibility for determining priorities, setting standards, enforcement, operating a national record-keeping and reporting system, providing employer/employee education, approving state plans, and awarding state grants. OSHA has a supportive role in nearly all these activities, and performs health and safety research, industry-wide studies, hazard evaluations, toxicity determinations, and annually publishes a list of toxic substances.

OSHA also regulates certain hazardous materials in Subpart H of 29 CFR § 1910. Some of these are: acetylene, compressed gases, dip tanks containing flammable or combustible liquids, explosives and blasting agents, flammable and combustible liquids, hydrogen, oxygen, nitrous oxide, spray finishing using flammable and combustible materials, storage and handling of anhydrous ammonia, storage and handling of liquefied petroleum gases. Certain toxic and hazardous substances are also regulated under OSHA: acrylonitrile, air contaminants, asbestos, ethylene oxide, lead, vinyl chloride, and many others.

### 2.2.2 State Laws and Regulations

The following State Regulations may influence the environmental process depending on the project emissions or hazardous waste generation.

California Clean Air Act (CCAA)  
California Statute (1988) Chap 1568  
Amending Sections in Health and Safety Code 39607 *et seq*

The CCAA requires all stationary sources to undergo pre-construction review and requires such sources to obtain permits from the local Air Pollution Control District (APCD). Under the Act, no person may install, construct, modify, or engage in any activity which may cause the issuance of air contaminants without first obtaining a permit from the APCD. The Act also prohibits the discharge of air contaminants from any source that may cause injury, nuisance, or annoyance to the public or damage to property, or exceeds certain capacity limits.

The State agencies primarily responsible for controlling air pollution are the California Air Resources Board (CARB), under jurisdiction of the California EPA (CalEPA) and local or regional air pollution control districts and air quality management districts. The California Health and Safety Code Division 26, Air Resources, contains the guidance for the CCAA and its amendments. The CCAA was designed to provide additional state ambient air quality planning at a time when the Federal Clean Air Act NAAQS attainment deadlines appeared to be inconsistent with California's efforts to address serious air quality problems in the state.

While California already has an air quality permit program in place, it must also comply with Title V of the Clean Air Act (CAA) of 1990 which goes into effect in November 1995. Title V tries to address the concerns about the lack of flexibility in current air permitting regulations. Title V provides the County and Local environmental communities the opportunity to rethink the environmental system. Regulation proposals are being provided which have environmental benefit while allowing increased operational flexibility and less burdensome administrative procedures.

In November, 1993, Santa Barbara County adopted the final Part 70 regulation (Regulation VIII) as required by Title V of the CAA amendments. The Environmental Protection Agency (EPA) has one year to approve the final regulation and Vandenberg AFB's Part 70 Permit application is due within one year of the regulation approval in November, 1995. The Part 70 Permit is a facility wide permit which is Federally enforced and locally implemented. There are many issues with respect to existing permit program, permit review, modification thresholds, potential to emit, toxic emissions under Title III, and operational flexibility which need to be resolved in the regulatory community and understood by the permit holder. All Title V emission sources will have to be identified in this application and recertified annually. Santa Barbara County permitted emissions are also reported annually.

Toxic Air Contaminants Law, 1983  
Health & Safety Code §§ 39650 *et seq*

This law establishes a program to evaluate and control potential air toxins. Penalties are provided for violations of the controls on emissions of identified air toxins. The California Air Resources Board (CARB) has the primary responsibility, and has identified sixteen categories of toxic air contaminants: inorganic arsenic, asbestos, benzene, cadmium, chloroform, ethylene dibromide, ethylene dichloride, hexavalent chromium, dibenzo-p-dioxins and chlorinated dibenzofurnas, carbon tetrachloride, ethylene oxide, methylene chloride, vinyl chloride, nickel, perchloroethylene and trichloroethylene. Following 1990 amendments, these categories account for more than 189 Hazardous Air Pollutant Standards (HAPS).

Toxic "Hot Spots" Information and Assessment Act  
Assembly Bill [AB] 2588 (1987)

The Toxic "Hot Spots" Information and Assessment Act requires the gathering of information on air emissions of hazardous substances from facilities that create localized airborne concentrations, or "hot spots," of such substances. A facility is subject to the Act if it was listed in any toxic air emissions survey, inventory or report, if it manufactures, formulates, uses or releases any substances on the Act's list, or if it has the potential to release criteria pollutants - Total Organic Gases, particulate matter (PM), nitrogen oxides (NO) or sulfur oxides (SO), in certain amounts. A facility subject to the Act must complete a detailed inventory of its emissions every two years. Risk assessments are to be prepared by facilities that have submitted emissions inventories, according to a priorities list set by the APCD. The risk assessment is a comprehensive analysis predicting dispersion of hazardous substances in the environment, the potential for human exposure, and resulting individual and population-wide health risk.

For any new source of emissions from a facility, the APCD performs a new risk analysis. If the APCD determines there is a significant risk associated with the new, then the operator of the facility (Vandenberg AFB) must conduct an airborne toxic risk reduction audit and develop a plan to implement airborne toxic risk reduction measures that will result in the reduction of emissions from Vandenberg AFB to a level below the significant risk level. Clean Air Act Amendments Title III has control requirements for toxic emissions and also has risk management plan requirements for accidental releases of toxic emissions.

The Toxic "Hot Spots" Information and Assessment Act requires Vandenberg AFB to prepare an Emission Inventory Plan (EP) which identifies all sources and/or process and their potential emissions. Once an EP has been approved by the Santa Barbara Air Pollution Control District (APCD), those potential emissions must be quantified (i.e., implementation of the EP to produce the Emission Inventory Report (EIR). AB 2588 then requires a risk analysis to those sources identified by the APCD and public notification of the results. The APCD performs the risk analysis and if the APCD determines there is a significant risk associated with emissions from Vandenberg AFB, then the Base must conduct an airborne toxic risk reduction audit and develop a plan to implement airborne toxic risk reduction measures that will result in the reduction of emissions from Vandenberg AFB to a level below the significant risk level.

Currently, Vandenberg AFB has completed the EP and EIR for 1990, and an updated EP and an updated EIR for 1991. A risk assessment has not been completed and Vandenberg AFB is considered "significant" until the assessment proves otherwise; the assessment should be completed in May, 1994. The next update requirement is for the 1993 operating year. Under the present California guidelines an AB 2588 updated EP is due to the APCD by August 1, 1994, and an AB 2588 updated EIR is due by August 1, 1995.

California Hazardous Waste Control Law (HWCL)  
Health & Safety Code § 25100 *et seq* (1972)

The HWCL imposes obligations on facilities from the generation to the disposal of hazardous waste. California's HWCL applies to Federal facilities insofar as the laws require permitting, inspections, and monitoring. State waste disposal standards, reporting duties, and the submission to state inspections are required of Federal facilities. The California HWCL pre-dates the Federal RCRA. The HWCL directed the California Department of Toxic Substances Control (DTSC) to adopt regulations that would allow California to obtain authorization to administer a state hazardous waste program in lieu of RCRA. The EPA and DTSC have entered into an agreement under which the DTSC performs certain RCRA functions for EPA, including some enforcement and permitting. Nonetheless, both agencies currently enforce hazardous waste management regulations in California. HWCL directs the DTSC to adopt regulations to implement HWCL. DTSC has adopted substantial regulations and re-codified these in 1991. The objective of this re-

codification was to conform closely in format to RCRA, in order to gain EPA authorization. It is important to understand that a material may be considered hazardous under the California HWCL which may not be hazardous under the Federal RCRA. In this case the hazardous waste(s) are called "non-RCRA hazardous wastes."

Regional Water Quality Control Board, Resolution No. 83-12 and Order No. 83-60

The State of California Regional Water Quality Control Board (RWQCB), Central Coast Region, regulates all domestic wastewater treatment systems discharging effluent to the surface (including evaporation/percolation ponds), in accordance with the Central Coast Basin Plan, dated March 14, 1975. Resolution No. 83-12 of the RWQCB covers amendments to the Central Coast Basin Plan and contains specific recommendations for community sewage system design. Community systems are defined as having sanitary wastewater discharges of greater than 2,500 gallons per day (average daily flow). Certain larger sewage systems on Vandenberg AFB are operated in accordance with RWQCB Order No. 83-60.

California Porter-Cologne Water Quality Act  
California Water Code § 13000 *et seq*

The California Porter-Cologne Water Quality Act defines a water quality control program for the state, which includes guidelines for long range resource planning, including programs for ground water, surface water, and reclaimed water. The Porter-Cologne Act is also designed to protect Coastal Marine water quality and to control discharges to wetlands, estuaries, and other biologically sensitive areas. The act is also administered by the RWQCB.

California Endangered Species Act (CESA).  
Fish & Game § 2050 *et seq* (1957), and  
California Native Plant Protection Act (NPPA)  
California Food & Agricultural § 80000 *et seq*

CESA and NPPA are administered by the California Department of Fish and Game. They are designed to protect the rare, endangered, and candidate species of plants and wildlife. Candidate species are those accepted for review by the state for inclusion in the list of threatened or endangered species. Rare plants are those plants which may become threatened or endangered,

because of decreasing numbers of restrictions in habitat. The US Air Force is not obligated to protect state-listed threatened or endangered species. However, Air Force policy is to work cooperatively with the California Department of Fish & Game.

California Code of Regulations, Title 22, Division 4, Environmental Health  
22 California Code of Regulations § 66001 *et seq*

These are the substantial regulations adopted by the California Department of Toxic Substances Control, now under CalEPA, to implement the Hazardous Waste Control Law (HWCL). These regulations were re-codified in 1991 to conform closely to RCRA format, while providing California its own, more stringent hazardous waste management program. The DTSC is working to obtain authorization to enforce the State's program in lieu of RCRA.

### 2.2.3 County Laws and Regulations

Santa Barbara County Air Pollution Control District (APCD)  
APCD Health & Safety § 40000 *et seq*

Air Districts (Air Pollution Control Districts and Air Quality Management Districts) have broad authority to control non-vehicular air pollution. Under state law, the air districts have the primary responsibility for control of air pollution, and may set stricter standards than set by state statute or CARB rules. Indeed the California Supreme Court has recognized their authority to regulate beyond the state ambient air quality standards and statewide toxic air contaminant program.

State law establishes detailed procedures to be followed by air district governing boards for adoption or amendment of district rules. Notices, informal workshops, public hearings, publication, public comment, and specific findings by a governing board are necessary. The district governing board must find the action is necessary, authorized, clear, consistent with other laws and regulations, and does not impose the same requirements as an existing state or federal regulation. (Health & Safety Code § 40727).

Health & Safety Code § 42300 and § 40506(a) directs all air districts to establish a permit system requiring any person who plans to build, alter, replace or operate any article, machine or other

contrivance capable of emitting air contaminants to first obtain a permit from the district in which the source is located. This is interpreted to include permitting of air pollution control equipment. Districts are authorized to impose fees for processing permit applications and for annual permit renewal. These fees are frequently substantial, since most of the costs of air district programs are financed through permit fees. A district may enter into a contractual agreement with a permit applicant to set a specific fee or reimbursement procedure.

The Federal CAA and EPA regulations require states to adopt, as part of their state implementation plan for attainment and/or maintenance of the Federal NAAQS, a pre-construction review program applicable to major new sources and to modifications of existing major sources (42 USC § 7410 and § 7475, and 40 CFR §§ 51-52, respectively). The pre-construction review program in non-attainment regions is called a “new source review” (NSR), and in attainment regions “prevention of significant deterioration” (PSD). NSR rules typically contain the following two provisions:

1. A threshold level for net emission increase for each air contaminant from the new/modified source, beyond which NSR requirements apply.
2. Emission offsets must be proposed by applicant and approved air district. An offset is a reduction of emissions at the existing stationary source exceeding the increase in emissions from the new/modified source.

#### 2.2.4 DOD, Air Force, and Vandenberg AFB Regulations

The following DOD and Air Force Regulations will influence the environmental process for projects accomplished at Vandenberg AFB. These regulations further implement the Federal environmental laws.

##### DOD Directive 6050.1 (AF Environmental Directive)

This high-level directive forms the Department of Defense specifies policy guidance within the Department for carrying out provisions of the National Environmental Policy Act.

#### Air Force Regulation 19-2 (AF Environmental Impact Analysis Process)

The Air Force provides further guidance in carrying out NEPA requirements for Air Force programs and on Air Force bases. This guidance applies to all commercial space launch programs to be conducted on Air Force bases.

#### Air Force Regulation 86-1 (AF Construction Approval Process)

AFR 86-1 prescribes policy and procedures for approving new construction. The 730th Civil Engineering Squadron carries out its procedures on Vandenberg AFB. Completion of AF Form 103 (Civil Engineering Work Clearance) is required before beginning new construction.

#### Air Force Regulation 55-31 (Site Survey Process)

AFR 55-31 prescribes the conditions under which a site survey must be performed, and the procedures for survey and documentation of construction siting on Air Force bases.

#### Air Force Regulation 127-100 (Explosive Safety)

This AFR is the Air Force Standard for Explosive Safety, and includes guidance for setting quantity/distance (Q/D) criteria for siting of launch facilities.

#### Western Range Regulation 127-1 (Launch Safety)

This contains the detailed range safety regulations for the Western Range launches originating at Vandenberg AFB.

#### Vandenberg AFB Master Plan TAB M-3 (Vandenberg AFB Master Planning Process)

The Vandenberg AFB Master Plan is currently being revised and automated in a computerized format, that will facilitate all future plans and construction approvals.

### 2.3 Permits, Approvals, and Reviews

Depending on the scope of the program, in addition to the EA or EIS, reports and permits for issues, like emissions and hazardous waste operations, may be required by State and County regulatory agencies. As stated previously, the 30 SW/ET office acts as the single point of contact between the Base and other regulatory agencies. Therefore, the 30 SW/ET may assist the commercial operator with preparation of the required documents, however, the commercial operator is responsible for all permit production and processing costs. The commercial operator submits all permit applications through the 30 SW/ET. Although permits for commercial activities are issued to the Air Force, the commercial operator is legally responsible for complying with the regulations.

The permits, approvals, and reviews are the actions necessary to achieve concurrence to conduct operations from the appropriate agency. There are a number of approvals required from different areas of the environmental system. As shown in Table 2.4, the permits, approvals, and reviews do not come from a central office.

Table 2.4 Typical Environmental Permits, Approvals, and Reviews Required

Permits	Approvals and Reviews
Clean Water Act (Section 404 and 401)	Archeological
National Pollutant Discharge Elimination System (NPDES)	Historic Preservation
Authority To Construct (ATC)	Coastal Zone Consistency
Permit To Operate (PTO)	Fish and Wildlife Protection
Construction Permit (AF Form 103)	Safety and Community Planning
Hazardous Materials/Hazardous Waste	Facility Design
Landfill	Explosive Siting
Digging	Storm Water Pollution
Wastewater Discharge	Fire Suppression
	Emergency Response Plan
	Spill Prevention Plan
	Hazardous Waste Plan

### 2.3.1 Federal Permits, Approvals, and Reviews

The following Federal permits, approvals and reviews may be required to conduct operations at Vandenberg AFB. The appropriate 30 SW Environmental, Safety, and/or other offices, accomplish the review as specified by the 30 SW/ET office.

- Title V Part 70 Permits, Title III risk management plans, Title I general conformity determinations, Title VI and Air Force policy and ozone depleting compounds (ODCs) and pollution prevention plans.
- A digging permit is required for any digging operations on Vandenberg AFB.
- Completion of AF Form 103 (Civil Engineering Work Clearance) is required prior to beginning of any new construction required by AFR 86-1.
- Approval to process non-hazardous wastewater is required by CWA, and a NPDES permit is needed to begin operations.
- Approval of an Emergency Response Plan and a Spill Prevention Plan is required prior to any toxic propellant activity. This is required by CWA, and RCRA.
- Review of the facility plans (for a new building) or modifications is necessary for consistency with the Vandenberg AFB Master Plan. A site survey process is required by AFR 55-31.
- Review of facility design and its water, electric, and septic requirements is required.
- Review of the Stormwater Pollution Prevention Plan and a Notice of Intent to comply with the terms of the general permit for discharge of stormwater on Vandenberg AFB. This is required by CWA and requires a NPDES permit.
- Review of facility fire suppression systems is required by the Vandenberg AFB fire department. Material Safety Data Sheets (MSDS), which identify material hazards and how to respond to safety concerns for these materials, are required for all materials stored or used on the site.

### 2.3.2 State and County Permits, Approvals, and Reviews

#### Air Quality Permits

The State of California delegates the issuance of air quality permits to the local APCD. The Air Quality Permit process includes permits for equipment and facilities. Facility construction requires a County review of the planned emissions and issuance of an Authority to Construct (ATC) permit before beginning construction. Following construction, a Permit to Operate (PTO) is necessary to begin operations.

Generally, the Federal and State requirements are delegated to the County for air quality permits. The County accomplishes issuance of permits through the local APCD. Air quality permits include, but are not limited to, operating equipment (such as fossil-fueled generators), cleaning equipment with solvents, painting,. As described in Section 2.1.1, approvals of permits is determined by the operation, emissions, and dispersion of by-products when exhausting into the atmosphere.

Any person or organization proposing to construct, modify, or operate a facility or equipment that may emit pollutants from a stationary source into the atmosphere may have to obtain an ATC permit from the county APCD or Air Quality Management Districts. The APCD issues permits and monitors new and modified sources of air pollution to ensure compliance with Federal, State, and Local standards and to ensure that emissions from stationary sources will not interfere with attainment and maintenance of ambient air quality standards adopted by the California Air Resources Board and the EPA. At Vandenberg AFB, at a minimum, an analysis of the best available technology (BACT)/lowest achievable emission rate (LAER) for any new emission source and emission offsets must be included in the ATC. For emissions which aggregate an over 5 lb/hr increase and Air Quality Impact Analysis (AQIA) may also need to be accomplished.

Following the completion of the project, the next major regulatory hurdle after the ATC is issued is for the proponent to complete the Source Compliance and Demonstration Period (SCDP). The SCDP typically includes source testing and analysis.

After the successful SCDP, the proponent must apply for a PTO and will receive conditions for the receipt and use of the final PTO. At a minimum, detailed record keeping and possible

periodic source testing will be included in the permit. At a maximum, continuous emission monitoring requirements would be included.

#### Hazardous Waste Permit

The US Air Force has permits for generation, storage, transportation and treatment of hazardous waste in accordance with RCRA and the California Hazardous Waste Control Law (HWCL), with the California Environmental Protection Agency (CalEPA) and the California Department of Toxic Substances Control. All facility operators on Vandenberg AFB must comply with the provisions of these permits. Procedures are specified in the Vandenberg AFB Operations Plan 8550S-89 for the proper disposal of hypergolic waste, Polychlorinated Biphenyls (PCBs), asbestos, spent lead-acid batteries, etc. The Santa Barbara County APCD assists in the hazardous waste process by accomplishing inspections and demolition of hazardous waste products, as necessary. The APCD also regulates the compliance of asbestos by accomplishing inspections.

#### Wastewater Discharge Permit

A Wastewater Discharge Permit is required under the CWA and RCRA for facilities and operations which will or may emit wastewater. Under RCRA, an NPDES Permit is required. The California RWQCB and the CalEPA administer the permit process. The permit ensures that discharged water meets drinking water quality standards at the discharge point.

An additional permit is required by the US Army Corps of Engineers if the project involves discharging of dredged or fill materials into the nation's navigable waters.

#### Other Permits

Other permits include landfill and digging permits which are approved by the 30 SW/ET.

#### 2.3.3 Vandenberg AFB Approvals and Reviews

The 30th Space Wing is the final authority for operations on Vandenberg AFB. The 30 SW Plans and Programs Office (30 SW/XP) is the interface for commercial users wishing to

accomplish space launch activities. The 30 SW/XP facilitates the integration of user requests with other Base agencies, including the 30 SW Environmental Management Office (30 SW/ET), and 30 SW Safety Office (30 SW/SE). Vandenberg AFB agencies accomplish approvals and reviews on all activities and processes which are accomplished on the Base even if an off-Base agency is involved in the approval process.

#### 2.3.4 Approval Authorities

There are a number of primary approval authorities to contact in going through the environmental process depending on the nature of the operation(s). Figure 2.1 shows the primary approval authorities and the environmental processes (discussed in Section 3.0). Table 2.5 lists the environmental processes, approval agencies, and environmental issues concerned with each process. New facilities, or modifications to existing facilities, may require the involvement of all the environmental agencies. Putting a new piece of equipment on-line or disposing of paint will also involve one or more of these agencies. The day-to-day activities may consist primarily of obtaining air quality permits or mitigating whether an operation requires a formal environmental process review.

The operational interfaces between the environmental and permitting agencies are shown in Figure 2.2. The 30th Space Wing Program Requirements Office, 30 SW/XP, is the "front door" for all commercial operators at Vandenberg AFB. The 30 SW/XP office interfaces with commercial operators and other Vandenberg AFB agencies such as environmental, safety, civil engineering, communications, etc.

The 30th Space Wing Environmental Management Office, 30 SW/ET, provides environmental assistance to users at Vandenberg AFB. The 30 SW/ET obtains authority from the Air Force Commander, 30th Space Wing (30 SW/CC), and Air Force Space Command, to administer to Federal environmental issues on Vandenberg AFB. The 30th SW/ET has four separate offices for administering specific areas of environmental responsibility - air quality; archeology, cultural, and historical preservation; US Fish and Wildlife Service; and National Marine Fisheries Services.

30 SW/ET interfaces between users on Vandenberg AFB property and other Base agencies such as the Environmental Flight (730 CES/CEV) of the 30th Civil Engineering Group (30 CEG).

- ENVIRONMENTAL IMPACT ANALYSIS PROCESS (EIAP)



30th Space Wing  
Environmental  
Management Office  
(30SW/ET,  
30 SW/CEG)

- ARCHEOLOGICAL, CULTURAL, AND HISTORICAL PRESERVATION



30 SW/ET and  
State Historic  
Preservation Office  
(SHPO)

- VANDENBERG AFB SAFETY AND COMMUNITY PLANNING



30th Space Wing  
Plans and Programs  
(30SPW/XP)

- ENDANGERED SPECIES



US Fish and Wildlife  
Service (USFWS)

- MARINE MAMMAL PROTECTION



National Marine  
Fisheries Service  
(NMFS)

- COASTAL ZONE CONSISTENCY



California Coastal  
Commission (CCC)

- HAZARDOUS WASTE HANDLING, STORAGE, AND DISPOSAL



Calif. Environmental  
Protection Agency  
(CalEPA)

- AIR QUALITY PERMIT



Santa Barbara Air  
Pollution Control  
District (APCD)

- WASTE WATER DISCHARGE PERMIT



Army Corps of  
Engineers (ACOE),  
California Regional  
Water Quality  
Control Board  
(RWQCB),  
California  
Environmental  
Protection Agency  
(CalEPA)

Figure 2.1 Environmental Processes and Approval Authorities

Table 2.5 Environmental Processes, Approval Agencies, and Issues

ENVIRONMENTAL APPROVAL PROCESS	REGULATORY OVERSIGHT AGENCY	ENVIRONMENTAL ISSUES AND IMPACTS
<b>Environmental Impact Approval Process</b>	US Air Force, 30 SW/ET (Coordinates with 30 SW/CE)	Single Point-of-Contact, Air Quality, Biology, Water, Health & Safety, Public Risk, Cultural, Coastal, Noise
<b>Archeological, Cultural, and Historical Preservation</b>	State Historic Preservation Office (SHPO), & Advisory Council on Historic Preservation (ACHP)	Impacts to Cultural and Historic Resources
<b>Vandenberg AFB Safety and Community Planning</b>	US Air Force, 30 SW/XP  US Air Force, 30 SW/CE  US Air Force, 30 SW/SE  US Air Force, Fire Dept.	Public Risk, Land and Facility Use Biological, Archeological, Air Quality, Botany, Construction Explosive Siting, Public Risk, Health and Safety Fire Protection
<b>Endangered Species</b>	US Fish & Wildlife Service (USFWS)	Protection of Species and Habitat
<b>Marine Mammal Protection</b>	National Marine Fisheries Service (NMFS)	Protection of Species and Habitat
<b>Coastal Zone Consistency</b>	California Coastal Commission (CCC)	Coastal Zone Impacts, from biological to recreational
<b>Hazardous Waste Handling, Storage, and Disposal</b>	US and California Environmental Protection Agency (CalEPA)	Health & Safety, Public Risk, Soil and Groundwater Contamination
<b>Air Quality Permit</b>	Santa Barbara County Air Pollution Control District (APCD)	Air Quality Impacts
<b>Waste Water Discharge Permit</b>	Army Corps of Engineers (ACOE) California Regional Water Quality Control Board (RWQCB) California Environmental Protection Agency (CalEPA)	Water Quality Impacts, Protection of Groundwater

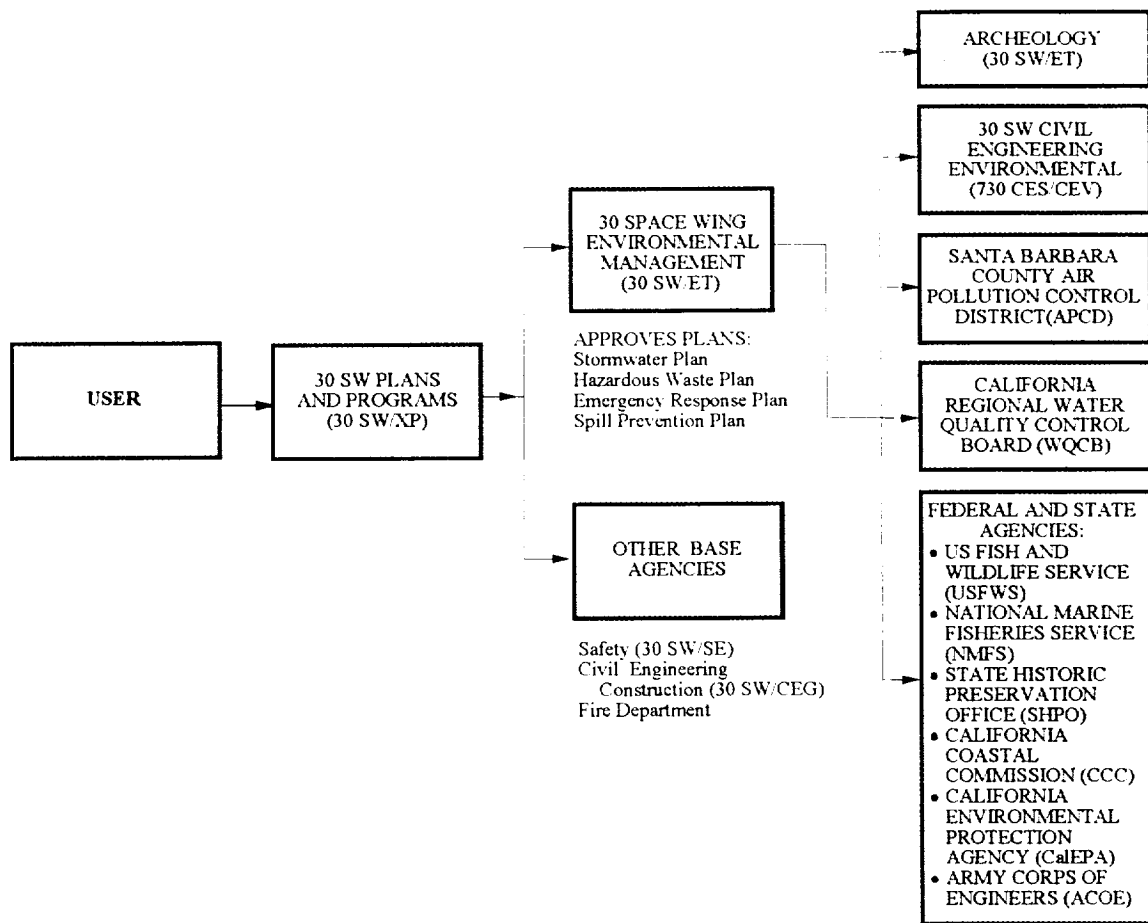


Figure 2.2 Operational Interfaces Between Environmental Approving Agencies

30 SW/ET also provides assistance to users with Federal and State regulators. 30 SW/ET provides coordination for:

- Endangered Species Act Section 7 Consultation (Fish & Wildlife Service primarily).
- Cultural and Historic Resources NHPA Section 106 Review (SHPO authority).
- Coastal Consistency Determination (California Coastal Commission authority).
- NPDES Permit or exemption (California RWQCB authority).

Additionally, 30 SW/ET is responsible for all Vandenberg AFB environmental permits with State and Federal regulatory agencies. For instance, since all handling, storage, and disposal of hazardous wastes/materials at Vandenberg AFB is done in accordance with existing Vandenberg

AFB permits, the 30 SW/ET coordinates and approves all plans and procedures for these activities with CalEPA.

There are several permits required from outside agencies, for which the 30th Space Wing Environmental Management office provides either the principal or a significant degree of coordination. The most important of these are the two permits required from the Santa Barbara APCD: Authority to Construct (ATC) and Permit to Operate (PTO), for which the Base has negotiated detailed Memoranda of Agreement that must be followed. Nonetheless, the approval authority remains with the Santa Barbara County APCD, as delegated by the Environmental Protection Agency for the Clean Air Act and for more stringent local rules enforced by the APCD. 30 SW/ET has the authority to approve operations which are shown not to violate Federal and State air quality emission standards. These air quality process approvals are accomplished under a de minimis exemption after the user provides evidence of ensuring a release below established limits (0.01 lb/hr).

## **2.4 Forms, Documents, and Letters**

The forms and documents required for submission of information and data to environmental agencies requesting approval of an operation is shown in Table 2.6. Copies of environmental forms are provided in Exhibit A; copies of Santa Barbara Air Pollution Control District permitting application forms are provided in Exhibit B. Each of these forms, and other documents and letters, used in the environmental process are discussed in the following paragraphs.

### **2.4.1 Forms**

#### **Air Force Form 813 (Preliminary Environmental Impact Analysis)**

The AF Form 813 submitted by the user to 30 SW/ET is a summary of the planned project, and preliminary analysis of potential impacts. A description of Description of Proposed Action and Alternatives (DOPAA) is included on the form. The user also needs to identify potential impacts of the proposed project on land use, air quality, water resources, safety and occupational health, hazardous materials/hazardous waste, biological resources, cultural resources, geology and soils,

Table 2.6 Forms, Documents, and Letters for Environmental Processes

ENVIRONMENTAL APPROVAL PROCESS	FORM, DOCUMENT, OR LETTER REQUIRED
Environmental Impact Analysis Process	AF Form 813; Environmental Assessment, Draft Environmental Impact Statement (EIS), Final EIS, and Record of Decision (ROD)
Archeological, Cultural, and Historic Preservation	Investigation of Area and Effects Cultural Resources Evaluation Cultural Investigation of Effects Cultural Resources Pre-construction Treatment Plan
Vandenberg AFB Safety and Community Planning	AF Form 943 Explosives Plan Changes to Vandenberg AFB Comprehensive Plan Explosive Siting Survey DD Form 1391 Military Construction Project Data AF Form 103 Base Civil Engineering Work Clearance Request
Endangered Species	Letter Request for Section 7 Consultation Biological Assessments Biological Opinion
Marine Mammal Protection	Biological Opinion
Coastal Zone Consistency	Coastal Consistency Determination California Coastal Commission (CCC) Staff Report and Recommendations
Hazardous Waste Handling, Storage, and Disposal	Spill Response Plan
Air Quality Permit	Authority to Construct (ATC) Permit Permit to Operate (PTO) Permit
Waste Water Discharge Permit	National Pollutant Discharge Elimination System (NPDES) Permit

socioeconomic, and other potential impacts. Using the information on the AF Form 813, the 30 SW/ET makes an assessment of the project and determines if the project qualifies for a Categorical Exclusion or if further environmental analysis is required (i.e., Environmental Assessment or Environmental Impact Statement). The AF Form 813 needs to be as clear and concise about the project for a proper evaluation by 30 SW/ET. A copy of the AF Form 813 blank form is in shown Exhibit A.

#### Air Force Form 943 (Siting Survey)

This form is used as the basis for 30th Space Wing System Safety Office to perform explosives safety evaluation, determine quantity/distance criteria, and related matters. A copy of the AF Form 943 blank form is in shown Exhibit A..

#### Air Force Form 1391 (Construction Approval Application Form)

This form serves as application for construction approval for on-base projects. A copy of the AF Form 1391 blank form is in shown Exhibit A.

#### Air Force Form 103 (Construction Permit)

When approved, this form allows for commencement of construction for the proposed project, as described and appropriately documented. A copy of the AF Form 103 blank form is in shown Exhibit A.

### 2.4.2 Documents

#### Environmental Assessment Report

An Environmental Assessment is performed, when appropriate, to analyze the environmental impacts of a proposed action and its alternatives, and to inform the public that the agency did consider environmental concerns in its decision-making process. Appropriate Federal and State

environmental regulators and other interested agencies make comments, but the final decision, a "Finding Of No Significant Impact (FONSI)," is signed by the Vice Commander, 30th Space Wing (30 SW/CV), who is the Chairman of the Environmental Protection Committee.

#### Environmental Impact Statement Report

A complete Environmental Impact Statement is recommended by 30 SW/ET when significant environmental impacts are not easily avoidable. This process allows for full public disclosure, extensive agency and public comments, and appropriate response by the proponent and the Air Force. The process assures adequate attention to the details of mitigating environmental impacts, and of not allowing for significant impacts to occur without appropriate oversight. The Record of Decision (ROD) is the final approval for an Environmental Impact Statement. The ROD is typically approved at Headquarters, US Air Force, at the Pentagon.

#### 2.4.3 Letters

#### Biological Opinion

The Biological Opinion is the final decision of the responsible authorities (the US Fish & Wildlife Service(USFWS) of the Department of Interior and the US National Marine Fisheries Service (NMFS) of the Department of Commerce) as to the likely impacts on endangered species by the proposed project, recommended conditions to mitigate likely impacts, or recommendation not to proceed with the project.

#### 2.5 Summary

The laws and regulations governing the environmental processes and the Forms, Documents, and Letters administratively required in the processes are shown together in Table 2.7(a) and 2.7(b). This table also shows the current points-of-contact for each of the areas.

Table 2.7(a) Summary of Environmental Approval Processes at Vandenberg AFB

Process	Law(s)	Regulations, Directives	Point(s) of Contact	Forms & Documents
Environmental Impact Analysis Process (EIAP)	National Environmental Policy Act, 42 USC §§ 4321-4347 <i>et seq</i> (1970 - 1989)	Council on Environmental Quality, 40 CFR 1500-1508 AFR 19-2, Environmental Impact Analysis Process DOD Directive 6050.1	30th Space Wing, Vandenberg AFB, Environmental Management Office, 30 SW/ET 805-734-8232, X6-1921	AF 813, AF 815, CATEx, Environmental Analysis, Environmental Impact Statement, Record of Decision
Archeological, Cultural, and Historical Preservation	Archeological and Historic Data Preservation Act, 16 USC § 470aa <i>et seq</i> (1979) American Indian Religious Freedom Act, 42 USC § 1996 (1978) National Historic Preservation Act (NHPA) of 1966, 16 USC § 470 <i>et seq</i> (1966)	36 CFR § 800: Advisory Council on Historic Preservation (ACHP) National Register Bulletin 15: National Park Service	30 SW/ET, Jim Johnston, 805-734-8232, X5-0633 (coordinates with SHPO - State Historic Preservation Office)	Section 106 Eligibility & Effects Determination
Vandenberg AFB Safety and Community Planning		AFR 127-100; WRR 127-1  Vandenberg AFB Comprehensive Plan AFR 55-31 AFR 86-1 Fire Code	30th Space Wing, Vandenberg AFB, Safety Office, 30 SW/SE 805-734-8232, X5-7245 30 SW/XP, 730 CEG 30 SW/XP, 30 SW/XP 30 SW/XP Vandenberg AFB Fire Department	AF Form 943  Changes to Comprehensive Plan Site Survey DD Form 1391; AF Form 103 Permit Material Safety Data Sheets (MSDS)
Marine Mammal Protection	Endangered Species Act, 16 USC § 1531 <i>et seq</i> (1973) Marine Mammal Protection Act, 16 USC § 1361 <i>et seq</i> (1972)	50 CFR §§ 222 and 227	30 SW/ET, Jim Johnston, 805-734-8232, X5-0633 NMFS, Craig Wengert, 310-980-4021	Ltr Request for Section 7 Consultation Biological Opinion (s)

Table 2.7(b) Summary of Environmental Approval Processes at Vandenberg AFB

Process	Law(s)	Regulations, Directives	Point(s) of Contact	Forms & Documents
Endangered Species Protection	Endangered Species Act, 16 USC § 1531 <i>et seq</i> (1973) National Environmental Policy Act, 42 USC § 4321-4347 (1970 - 1989) Clean Water Act, 33 USC § 1251 <i>et seq</i> (1977)	50 CFR §§ 17, 226, and 402	US Fish & Wildlife Service (DOI), Jim Webster: 30 SW/ET, 805-734-8232, X6-3296	Ltr Request for Section 7 Consultation Biological assessment report(s) Biological Opinion
Coastal (Zone) Consistency	Coastal Zone Management Act, 16 USC § 1451 <i>et seq</i> (1972)	15 CFR § 930: NOAA Federal Consistency Regulations	California Coastal Commission 30 SW/ET	Coastal Consistency Determination Staff Report and Recommendation
Hazardous Waste Handling, Storage, and Disposal	Resource Conservation and Recovery Act, 42 USC § 6901 <i>et seq</i> (1976)	Hazardous Materials Contingency Plan Vandenberg AFB Spill Response Plan		Spill Response Plan
Air Quality Permit	Clean Air Act, 42 USC § 7401 <i>et seq</i> Clean Air Act Amendments of 1990, 42 USC § 7401 <i>et seq</i> California Clean Air Act, Calif. Statutes (1988) Chapter 1568 APCD-Vandenberg AFB Stationary Source Memorandum of Agreement	Santa Barbara Co. Air Pollution Control District, Rules and Regulations (201, 202, 301) Asbestos Notification	30th SW/ET, Robert. Buehner, 805-734-8232, X6-4195 Santa Barbara County APCD Engineering Supervisor, David Romano, 805-961-8800	A/C Permit Application, P/O Permit Application
Waste Water Discharge Permit	Clean Water Act, 33 USC § 1251 <i>et seq</i> (1977) Resource Conservation and Recovery Act (RCRA) - 42 USC § 6901 <i>et seq</i> (1976) Comprehensive Environmental Response, Compensation and Liability Act, 26 USC § 4611 <i>et seq</i> (1980)	40 CFR § 122 (National Pollutant Discharge Elimination System Permit) California Code of Regulations, Title 22 - Environmental Health, Chapter 30 Vandenberg AFB Spill Response Plan	30 SW/ET, 805-734-8232, X6-1921 30 SW/ET, 214 Mathieu, 805-734-8232, X6-0126	Stormwater Pollution Prevention Plan Hazardous Materials Contingency Plan (User)

## SECTION 3.0 ENVIRONMENTAL PROCESS

## 3.0 ENVIRONMENTAL PROCESS

### 3.1 Environmental Process Overview

The environmental process provides for requesting environmental assessments and the many types of necessary permits for space launch operations at Vandenberg AFB. The process is very complicated due to the complexity of Federal and State environmental statutes and the diversity of the "environment" that must be protected:

- Air, water, and soil.
- Public safety, health, hygiene, and recreation.
- Terrestrial and marine animal life, plant life, and habitat.
- Natural, cultural, and historic resources.

Specific events, political factors and personalities shape legislative enactment. The scope and force of law are as broad or limited as the motivating events and legislative process allows. Regulatory development is similarly affected by historical details of the process and experience and expertise of the regulating agency itself. Each piece of legislation and the consequent regulations are, therefore, somewhat distorted or biased in various directions. In time, the biases of additional legislation add to the overall complexity of law and regulations. The result often includes inconsistencies, gaps, and over-reactive strategies. Many of these inefficiencies could be eliminated or reduced, if it were possible to bring together every agency involved to streamline the regulatory and operational parts of the process.

The current environmental process consists of many aspects due to the diversity of regulations and expertise required from the many environmental agencies involved. The purpose of this section is to present, and impart an understanding of, the entire environmental process necessary for a commercial user to accomplish space hardware processing and launch at Vandenberg AFB. The process is first presented in an overview to permit a general understanding of the main arteries of the process. In the previous chapter, the primary approving agencies were identified for the ten different environmental processes. In Figure 2.1 and Table 2.5 of Section 2.3.3, the processes are shown with the main environmental agencies involved in the environmental approval process.

Actually, there are three main arteries of the environmental approval process. These three main arteries divide the elements of the environmental process into a natural categories and make for an easier understanding of the entire environmental approval process. These three main arteries include:

1. Environmental Impact Analysis Process (EIAP)
2. Vandenberg AFB Safety and Community Planning Process
3. Compliance/Permit Process

This scenario is shown in Figure 3.1. All three of these processes must be addressed prior to obtaining an environmental approval. It should immediately become apparent from Figure 3.1 that the majority of the environmental processes for achieving approvals are accomplished on or through Vandenberg AFB.

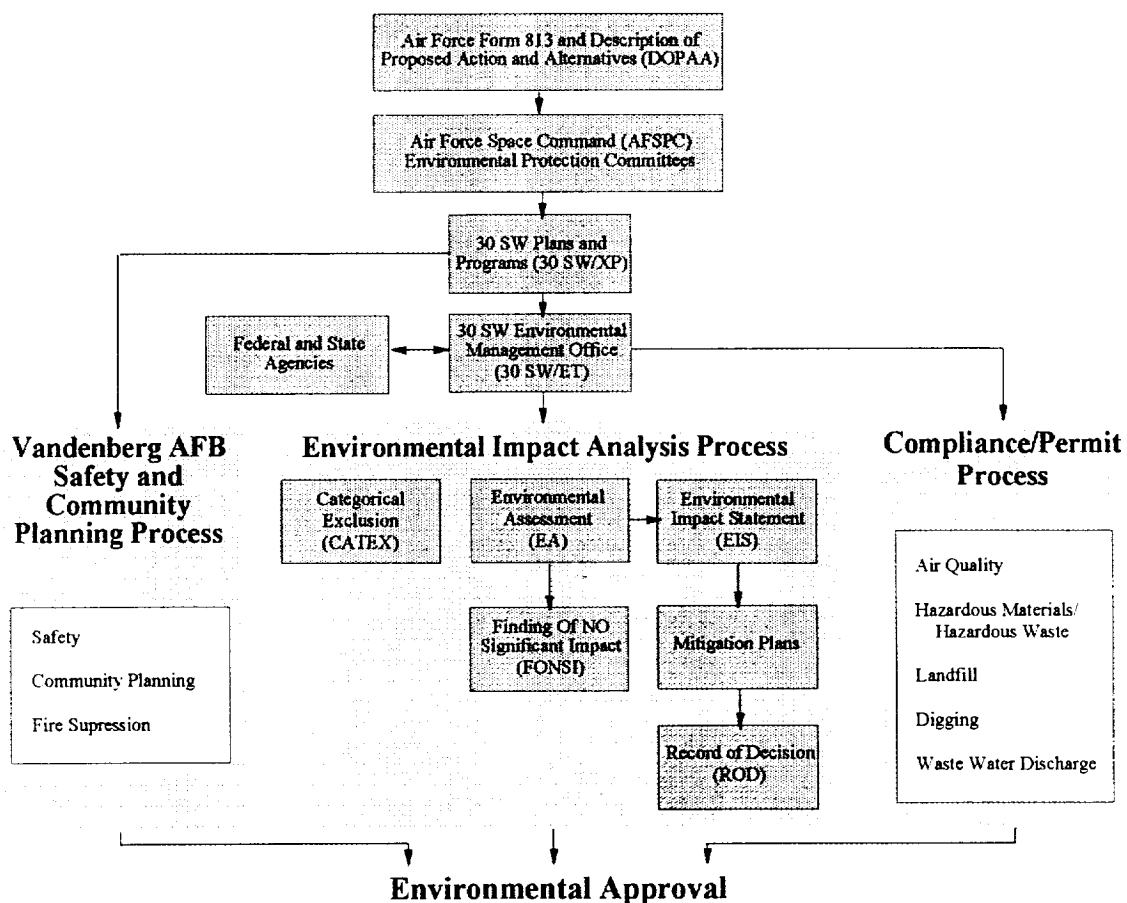


Figure 3.1 Three Main Processes for Environmental Approval

It should become immediately apparent from Figure 3.1 the off-Vandenberg AFB agencies are not shown. These environmental agencies interface through the 30 SW/ET, as shown in Figure 3.2. In fact, as described in Section 2.0, the 30 SW/ET interfaces directly with the user and all environmental agencies, both on- and off-Vandenberg AFB. However, each of the environmental agencies has a separate environmental process of their own, which complicates the overall process and can increase the time for obtaining approval.

A top-level flow chart of the environmental approval process is shown in Figure 3.3. In the following paragraphs, a detailed description of each of the three main processes associated with obtaining agency approvals is provided for the reader. This section also addresses the timeline of each process.

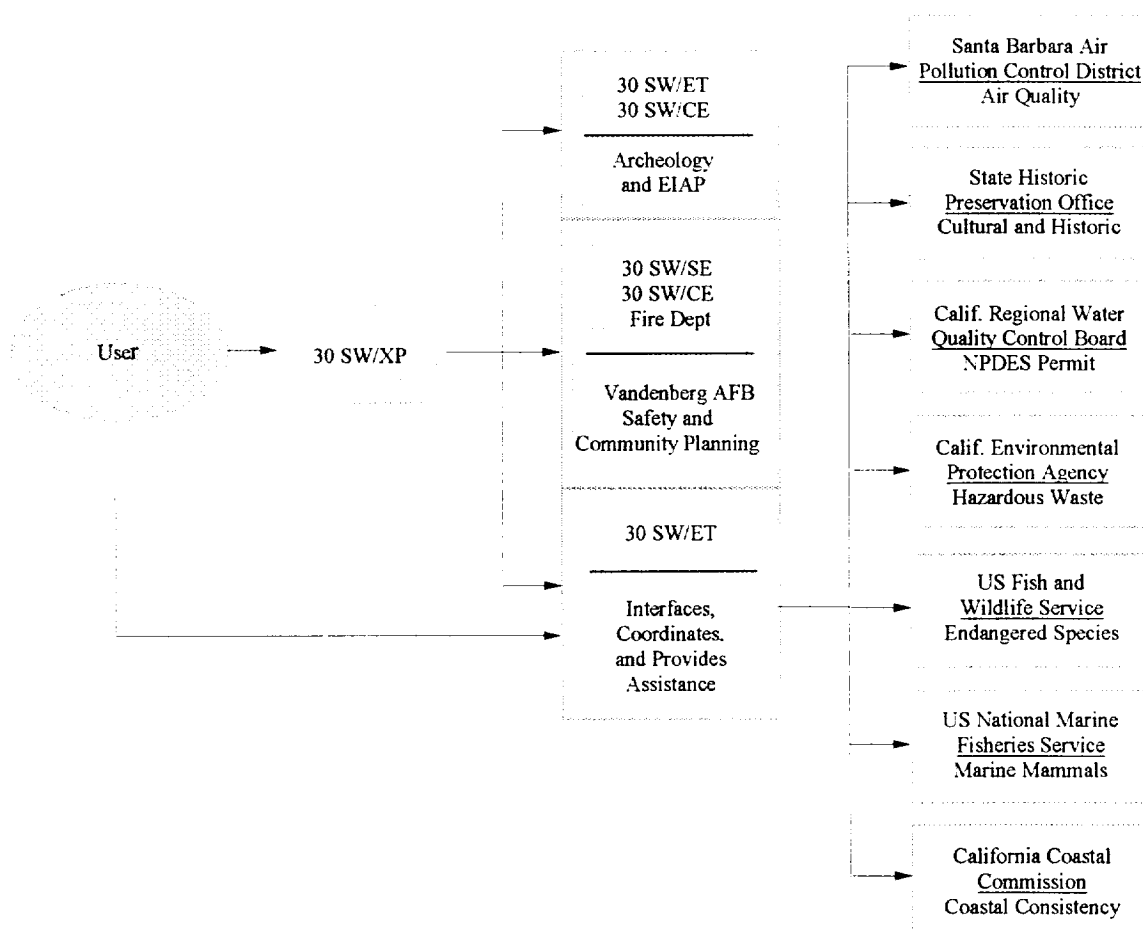


Figure 3.2 User and Environmental Agency Interfaces with 30th Space Wing

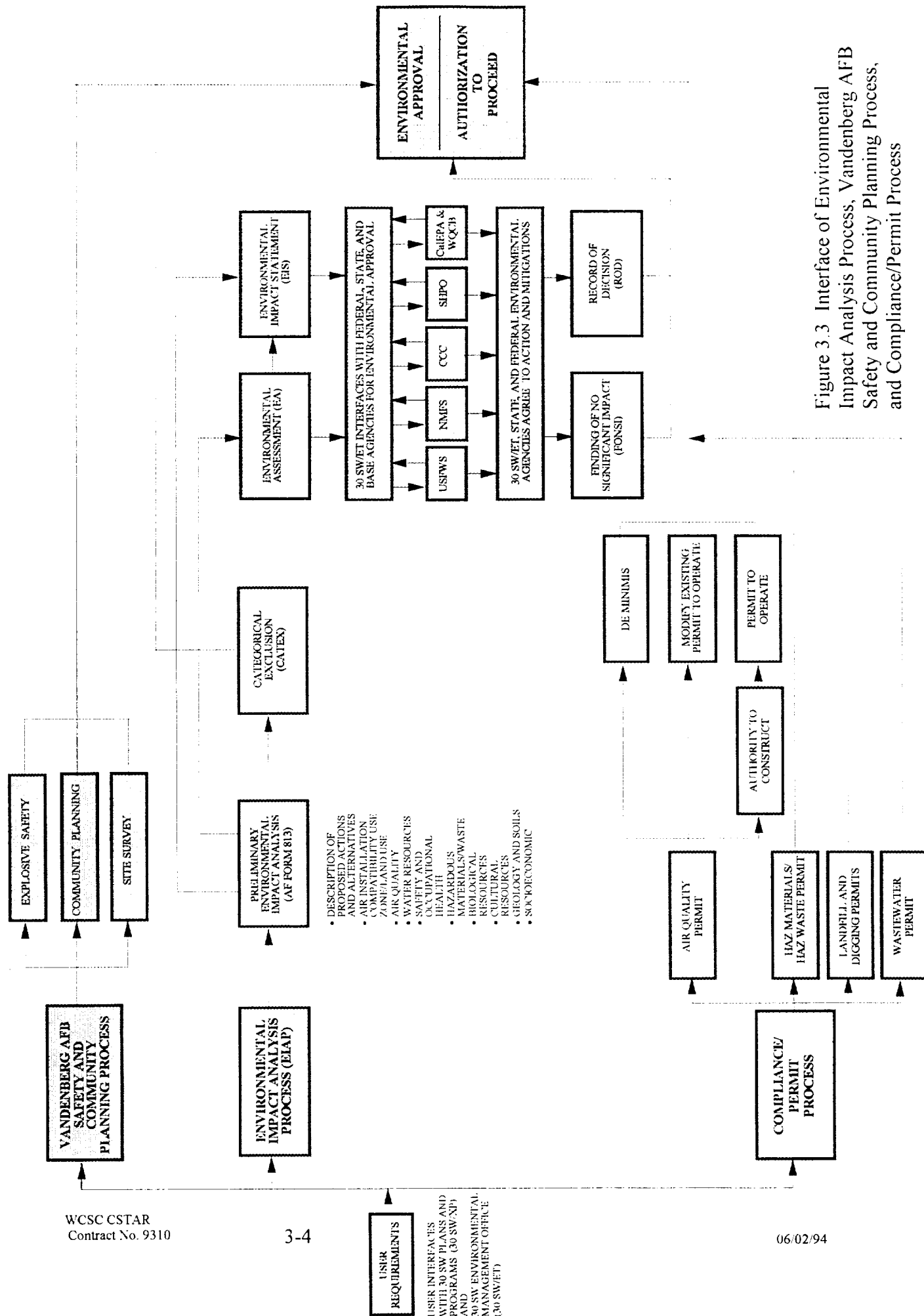


Figure 3.3 Interface of Environmental Impact Analysis Process, Vandenberg AFB Safety and Community Planning Process, and Compliance/Permit Process

### 3.2 Environmental Impact Analysis Process

The President's National Space Policy establishes that commercial space activities at Federal launch facilities comply with NEPA. Therefore, a commercial operator must complete the Environmental Impact Analysis Process (EIAP) before the Air Force will support to the commercial program under an Air Force Commercialization Agreement. A signed Mini-Agreement between the user and Vandenberg AFB (30 SW) allows the Air Force to provide planning support until the EIAP is complete. The "HQSPACECOM Environmental Protection Committee Guidance on Commercial Space Activity EIAP" (October 1991) explains the process for completing the EIAP.

Figure 3.4 shows an overview of the EIAP. The EIAP is a multi-discipline approach to determine impacts on the "human environment". The process addresses biophysical (flora and fauna), cultural (coastal, archeological, and historical), and socioeconomic impacts. The 30th Space Wing Environmental Management Office (30 SW/ET) is the single point of contact with regulatory agencies for activities on Vandenberg AFB. All correspondence in connection

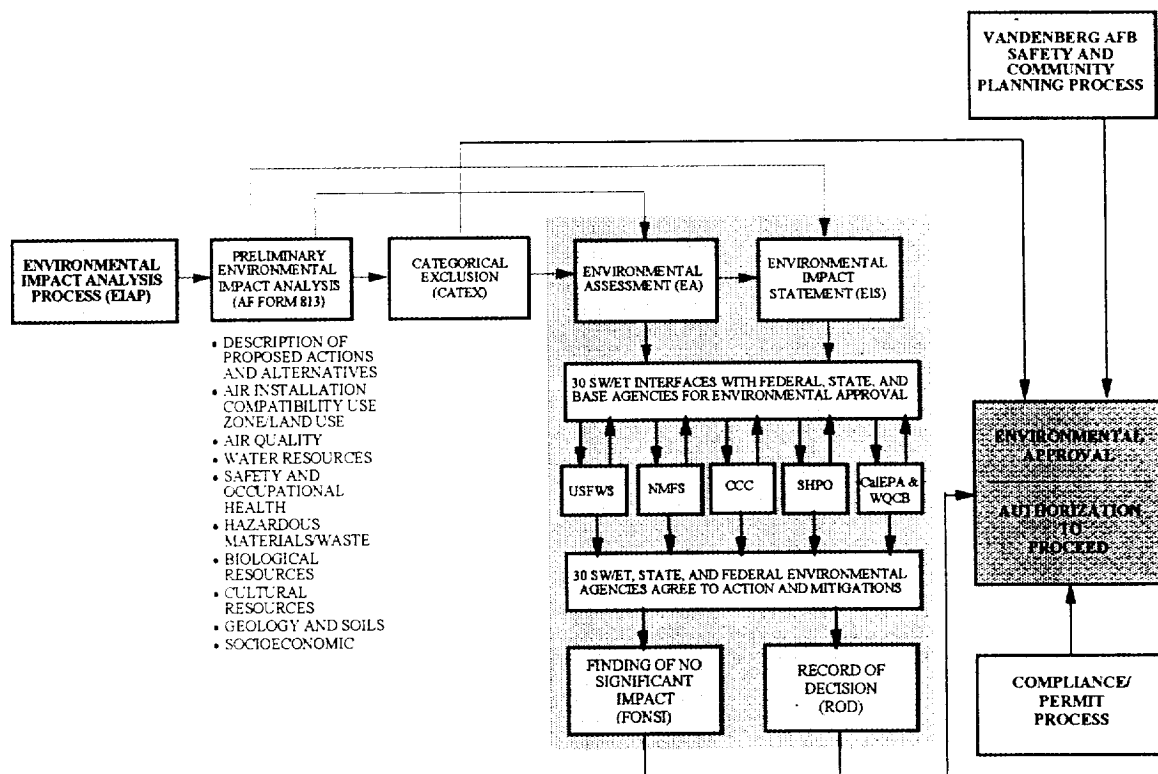


Figure 3.4 Environmental Impact Analysis Process

with the EIAP or environmental permits will be signed by 30 SW/ET. The user is required to ensure the program/project is designed in accordance with applicable Federal, State, and County regulations, as well as Vandenberg AFB plans and permits.

The EIAP begins with a user's submission of the Air Force Form 813, "Request for Preliminary Environmental Analysis", to 30 SW/ET. A "Description of Proposed Actions and Alternatives" (DOPAA) is submitted as a part of the AF Form 813. The complexity of the DOPAA should be equivalent to the complexity of the project, but it should be kept simple and to the point. (The commercial user should keep in mind that early preparation and submittal of documents supports a faster turn around on the environmental process.)

The simplest environmental approval occurs if an analysis of the users requirements allows award of a Categorical Exclusion (CATEX). If the project does not qualify for a CATEX, an Environmental Assessment (EA) report is required. If the EA reveals no significant environmental impacts, a Finding of No Significant Impact (FONSI) is issued. If neither a CATEX or FONSI is possible, the full Environmental Impact Statement (EIS) must be prepared. An EIS culminates in a Record of Decision (ROD).

A "No Action" possibility exists if the plans for the project cannot be mitigated to satisfy environmental concerns. The "No Action" alternative is considered in an EA or EIS to ensure that stopping the environmental impacts of a project are known. At the conclusion of an approved environmental path, the user is ready to proceed with implementation of the project.

The following paragraphs describe the major parts of the EIAP in more detail.

#### Air Force Form 813 (Request for Preliminary Environmental Analysis)

The AF Form 813 begins the EIAP process. The form, described in Section 2.4.1, provides the initial communication between the user and the 30 SW/ET concerning the proposed project. In a condensed format, the entire project and the potential environmental impacts are addressed. Using the information on the AF Form 813, the 30 SW/ET will determine if the project meets the qualifications for a CATEX or if a further environmental assessment is necessary in the form of an EA or an EIS.

A DOPAA is part of the AF Form 813. The DOPAA covers the purpose for the proposed action being requested (i.e., Commercial Space Launch Act - access to space for commercial applications); identifies the location of the proposed action and facilities (i.e., launch facility and support facilities); and identifies a list of applicable regulations, permits, and concurrence expected for environmental approval. The DOPAA must include construction limits to include all areas affected by the project, including but not limited to, construction laydown and access, facility parking and access, and new or modified utility requirements. Additionally, the DOPAA must describe, if applicable, the launch vehicle and its flight path, support activities, program development (to the extent necessary to justify need for the action), number of persons involved in operations, hazardous and/or toxic materials, safety issues and procedures, and an estimate of scheduled key milestones. Finally, the DOPAA must address the "No Action Alternative", a comparison between the proposed action and other possible alternatives, and considered alternatives which are eliminated. The alternatives should be reasonable and consider those which have less adverse environmental impact than the preferred alternative. The DOPAA is a data collection and writing exercise. The time taken to write a DOPAA is a function of the stage of program development. There are no approval points for a DOPAA: all the approvals on programs is 30 SW/XP, the proposer, and the proposer's consultants.

A copy of the AF Form 813 with the 30 SW/ET decision is returned to the user. A sample AF Form 813 is shown in Exhibit A. The AF Form 813 process typically requires less than a month.

#### Categorical Exclusion

According to the President's Council on Environmental Quality Regulation, 40 CFR § 1508.4, "a categorical exclusion means a category of actions which individually or cumulatively do not have a significant effect on the human environment." The Air Force list of excluded categories appears as Attachment 7 to AFR 19-2 (Environmental Impact Analysis Process). Generally, only types of projects which were previously-approved under NEPA can qualify for a CATEX.

#### Environmental Assessment

For new programs, an Environmental Assessment (EA) may be sufficient for the EIAP if no potential exists for "significant impacts to the human environment. A Finding of No Significant Impact (FONSI) can be made if there is no potential for significant impacts.

The commercial operator is responsible to ensure the EA document submitted to the Vice Commander, 30th Space Wing (30 SW/CV) meets the President's Council on Environmental Quality Regulation, 40 CFR § 1502.10. The EA contains a summary of the proposed action and alternatives, a discussion of the existing environment, a discussion of potential impacts to the direct and indirect environment, and a discussion of the cumulative effects. The EA review process includes coordination with the Base, Local, State, and Federal environmental regulatory agencies. If appropriate, the FONSI is executed by the 30 SW/ET. Depending on the scope of the program and number of regulatory agencies involved, the EA/FONSI process typically requires six to twelve months. If the EA indicates a potential for significant impact, the next step of the environmental process is an EIS.

Agencies, other than the Air Force, which may become involved in the EA process may include, but are not limited to, US Fish and Wildlife Service (USFWS), California Coastal Commission (CCC), State Historic Preservation Officer (SHPO, also known as the Office of Historic Preservation), Regional Water Quality Control Board (WQCB), Water Resource Control Board (WRCB), National Marine Fisheries Service (NMFS), and the US Army Corps of Engineers (ACOE). Each of these agencies and environmental jurisdictions are discussed in Section 3.2.1.

### Environmental Impact Statement

For new programs including actions with significant environmental effects, an Environmental Impact Statement (EIS), noting the effects and explaining mitigation measures, is required for environmental approval. When an EIS is required, it will be prepared by the operator at the operator's own expense.

The EIS review process includes coordination with the Launch Base, Local, State, and Federal environmental regulatory agencies. Prior to preparing the Draft EIS (DEIS), the Air Force will hold a public scoping period which normally includes public meetings and contacts with the regulators. The EIS is typically required for any new construction or extensive modifications to an existing facility. As with the EA, the commercial operator is responsible to ensure the EIS contains the detailed information for approval. This process includes a DEIS and a Final EIS (FEIS). Following publishing of the DEIS, a series of public comment meetings are held to allow the general populace to comment on the proposed action. Substantiated comments are published with the FEIS. Upon completion of an EIS, the document is reviewed by Headquarters Air Force, then the appropriate Secretary of the Air Force decision maker will execute the Record

of Decision (ROD). The ROD may obligate the Air Force (and in turn, the commercial operator) to specified actions to mitigate the impact of the proposed action. The mitigation of the proposed action could be an expensive, long term obligation. Examples of past mitigations for DOD projects on Vandenberg AFB include rebuilding a wetlands area in a new location and planting indigenous plant species. Depending on the scope of the program and the regulatory agencies involved, the EIS/ROD process typically takes twelve to thirty-six months.

### 3.2.1 Environmental Approval Agencies

If a CATEX is not appropriate for the project, the EA process may include review and approval from off-Vandenberg AFB environmental agencies. These agencies may include, but are not limited to, USFWS, CCC, SHPO, WQCB, WRCB, and NMFS. As stated previously, the EIAP may also involve the ACOE for certain projects. Each of these agencies and environmental jurisdictions are discussed in the following paragraphs.

#### US Fish & Wildlife Service

The US Fish & Wildlife Service (USFWS) of the Department of Interior, and the National Marine Fisheries Service (NMFS) of the Department of Commerce, are jointly responsible for carrying out mandates of the Endangered Species Act (ESA). If any listed or nominated species to the endangered species list is expected to be encroached upon directly or indirectly by the activities related to the proposed action, then 30 SW/ET must consult with the USFWS under Section 7 of the ESA. These agencies review potential impacts to endangered, threatened or candidate species, as part of the EIAP. In addition, Section 7 of the ESA, Federal Agency Actions and Consultations, a formal consultation process is required to consider an opinion concerning possible affects to these species or their habitat. Under Section 7, the Federal action can not start until the consultation is complete. Other laws pertinent to this process include the Marine Mammal Protection Act, the Migratory Bird Treaty Act, the Clean Water Act, and NEPA. Regulations define the procedure and analyses required by the "Section 7 Process." These are contained in 50 CFR §§ 17, 222, 226, 227, and 402.

In general, careful study of potential impacts by the prospective commercial launch operator, can avoid considerable waste of time and money later. In most cases, potential effects on particular

endangered, threatened, or candidate species can be predicted by conferring with 30 SW/ET, and reviewing relevant past analyses for other proposed or existing projects at similar or adjacent sites. Several potential sites should be considered, if possible. If potential impacts are not considered serious, then "biological information in support" of this can be carefully documented and forwarded through 30 SW/ET to the USFWS, including possible conditions acceptable to the applicant that would prevent or mitigate possible effects to the wildlife or plant life in the area. If potential impacts may be more serious, then a more formal and elaborate "biological assessment" should be prepared by the applicant. Preparation of these materials can vary from about 30 days to prepare "biological information in support" to 90, or even 180 days, for more complex cases.

Figure 3.5 shows the principal elements of the USFWS Environmental Approval Process. The 30 SW/ET's review of the applicant's biological information/assessment generally requires only five to ten days. If the evaluation is incomplete, it could be returned for further work; however, since the Air Force will only forward the materials when they can support its information and conclusions. The USFWS, and possibly the NMFS, will then review these materials and render a "Biological Opinion" after a period of 90 to 135 days. This review could become more extensive, however, should the USFWS or NMFS disagree with information provided by the applicant. In such a case, the applicant's materials could be deemed inadequate and be returned for further study and evaluation after a 90 day period.

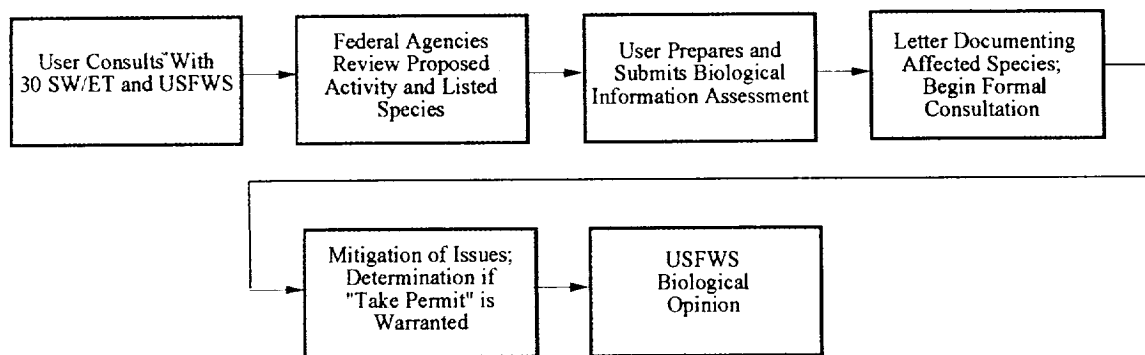


Figure 3.5 US Fish and Wildlife Service Environmental Approval Process

In practical terms, more than a single discussion is required between the commercial operator and the USFWS biologists. The purpose of the discussions is to reach a biological opinion, which

provides a conclusion on the endangerment to the listed species and if a "take permit" is warranted. (A "take permit" is the number of wildlife which the state will allow to be destroyed in the course of conducting the commercial operation.) The "take permit" application should be initiated as soon as possible when it becomes evident during the consultation period the permit may be necessary to complete the approval requirements. The "take permit" process may require six to twelve months to obtain approval.

In the extreme case a proposed action may be stopped because it endangers a species; however, mitigations are available in some cases. Monitoring may be required to measure the actual effects of a proposed action to quantify a "take" and establish if there will be a concern in the future. The commercial operator must understand that monitoring is not mitigation, but rather a data collection action.

In difficult cases, a formal biological assessment may be required. The biological assessment, which is outside the NEPA regulators jurisdiction, is prepared according to ESA regulations. When 30 SW/ET is not certain of the effect on wildlife, a FONSI for an EA may be held up until the USFWS confirms the conclusions of the EA.

The final Biological Opinion is likely to be a "no jeopardy opinion" with conditions attached, if the proponent and the 30 SW/ET have all done their homework well. If there are serious impacts to wildlife, or possible "takes" of marine mammals, then the process will likely take much longer, and the opinion could be a "jeopardy opinion."

#### National Marine Fisheries Service (NMFS)

The NMFS administers the protection of marine mammals listed in the ESA, as well as marine life listed in the Marine Mammals Protection Act. The consultation process is analogous to the USFWS process, but the NMFS is a separate Federal service under the National Oceanic and Atmospheric Administration. The NMFS environmental approval process is shown in Figure 3.6. The consultation process is initiated by a request from 30 SW/ET to the NMFS for consultation services.

If the commercial operation affects marine mammal life, the state may authorize a "take permit" for the commercial operator. (See "take permit" definition in USFWS discussion above.) Since the current legal definition for marine mammals is very broad, a "take permit" may result even

though the response is a normal wild mammal reaction to a perceived threat. As stated in the USFWS discussion, in the case where a "take permit" is required, the process may take six to twelve months to obtain approval.

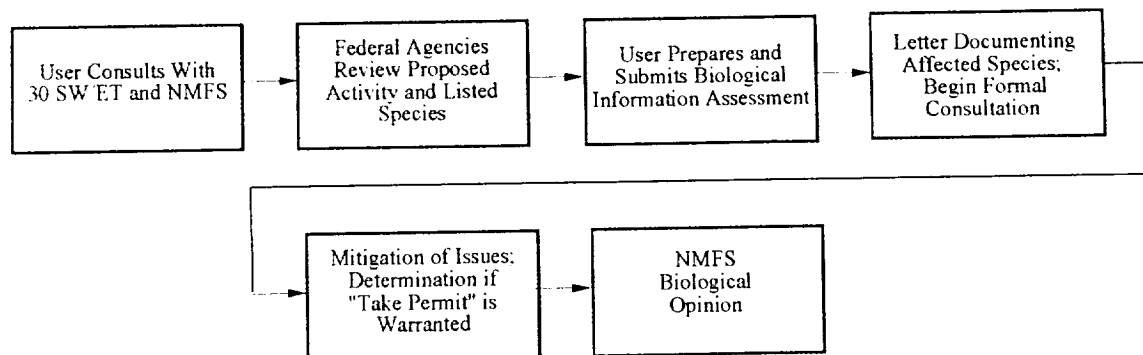


Figure 3.6 National Marine Fisheries Service Environmental Approval Process

#### Environmental Protection Agency

The Environmental Protection Agency (EPA) is the principal Federal agency concerned with protecting the nation from pollution in its various forms. The EPA administers the Clean Air Act and various research and standard-setting programs, including those for pesticides and automotive transmission. The agency also operates a biological research laboratory. It gathers information, conducts research on the effects of pollution, and establishes and enforces Federal standards for environmental protection. The EPA also provides assistance through grants for state and local anti-pollution programs.

#### California Coastal Commission

The California Coastal Commission (CCC) was established by the State of California. The CCC has jurisdiction under the Coastal Zone Management Act (CZMA) for projects in or outside the coastal zone, if they affect the land, water, or other natural resources of the coastal zone. The agency carries out Consistency Determinations for Federal projects, in accordance with the National Oceanic and Atmospheric Administration (NOAA) Federal Consistency Regulations, 15 CFR § 930. The Federal act preserves supremacy by stipulating that Federal activities need only be "consistent" with the State's coastal zone policies, as practical. The CCC can express a preference for an alternative to the proposed action. If the alternative is viable, the Air Force is presented with the requirement to justify why the alternative should not be used.

The CCC Environmental Approval Process, or Consistency Determination Process, is shown in Figure 3.7. The Consistency Determination Process oversight (15 CFR § 307(c)(1)) is initiated by a request from 30 SW/ET for consultation services. Evaluation and drafting of the Proponent's Consistency Determination can take from 30 to 90 days. Review by 30 SW/ET and forwarding to the CCC is typically a five to ten day step. Review by the CCC and setting the determination on agenda for a public meeting generally takes from 45 to 60 days.

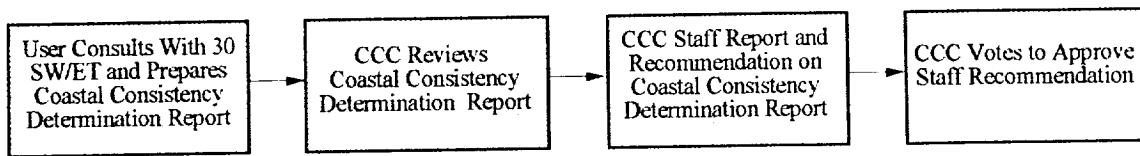


Figure 3.7 California Coastal Commission Environmental Approval Process

Since Vandenberg AFB is a Federal Range, rather than a Consistency Determination, the CCC may approve a "Consistency Certification" for non-Federal (commercial space) activity on Vandenberg AFB (15 CFR § 307(c)(3)). The certification provided by the applicant states the activity is consistent with California's coastal management program (15 CFR § 930.57(b)). The CCC could require a permit, if the action is determined to be commercial activity which requires continuous state regulatory oversight. The consistency certification or permit application is submitted by the applicant to the Coastal Commission for its review. The Commission then has six months from the date a permit application is submitted or three months from the date a consistency certification is submitted to accomplish its review, or else the Commission's concurrence is presumed. If the Commission objects to the consistency certification, the Federal agency can not issue a permit or license unless the objection is appealed to the Secretary of Commerce by the applicant and the Secretary overrides the objection.

#### State Historic Preservation Office

The State Historic Preservation Office (SHPO) and the Federal Advisory Council on Historic Preservation (ACHP) combine to implement the National Historic Preservation Act (NHPA). Section 106, (defined in this section) of NHPA requires that Federal agencies consider what

effects their actions and actions they may assist, permit, or license, might have on historic properties. They must give the ACHP a "reasonable opportunity to comment" on such actions.

Under the NHPA, the Air Force is required to involve the SHPO in the environmental process. If the project will affect historic properties, the Air Force must consult with ACHP. The regulations provide broad encouragement for participation in Section 106 review by Native Americans and traditional cultural leaders.

The procedures set up by 36 CFR § 800 define the process Federal agencies use to meet these responsibilities. Section 106 of the NHPA applies to properties listed on the National Register of Historic Places, those eligible but not listed, and properties that may be eligible but have not yet been evaluated. Any property listed in the National Register of Historic Places, or potentially eligible for inclusion into the register, may be considered historic. The National Register of Historic Places is maintained by the Secretary of Interior, and includes: buildings, structures, objects, sites, districts, and archeological resources. Even properties that have not yet been discovered (such as archeological properties), but are possibly significant, are subject to a Section 106 review.

The commercial launch proponent must investigate and document the possibility of cultural/historic resources being affected by his proposed project, and document these possibilities, and possible effects on such properties, for SHPO. If the documentation is adequate, and a "No Effects Determination" (NED) can be justified, the entire process may require only about 120 to 210 days. The process can become very lengthy, however, if there are likely effects, and treatment plans or a Memorandum of Agreement (MOA) must be accomplished. The proposed project may fail because of the discovery of possible effects.

The Section 106 process has five steps (shown in Figure 3.8):

1. Identify and Evaluate Historic Properties. A records search is conducted and a field investigation (survey, subsurface testing) is accomplished to locate cultural resources and determine boundaries of the site. An evaluation is performed to determine whether sites are significant using criteria for eligibility to the Register. The evaluation may require more data leading to more fieldwork. Upon completion of the evaluation, eligible sites are considered Historic Properties.

2. Assess Effects to Historic Properties. The ACHP preservation criteria is applied to significant resources in consultation with the SHPO. If there is an effect of a proposed action to the property, then the ACHP criteria of a permanent adverse effect is studied in consultation with the SHPO. In some case, an otherwise adverse effect may be considered "not adverse", if the property's value is primarily informational, if the value can be preserved through research, and if the research is conducted according to appropriate professional standards.
3. Consultation. If an adverse effect cannot be avoided or mitigated, the 30 SW/ET, SHPO, ACHP, and other interested parties (local governments, Native American representatives, etc.) consult to resolve the situation.
4. Comment. The ACHP may comment during the consultation or following the consultation process.
5. Approval to Proceed. The 30 SW/ET proceeds with the undertaking, taking into account the ACHP comments.

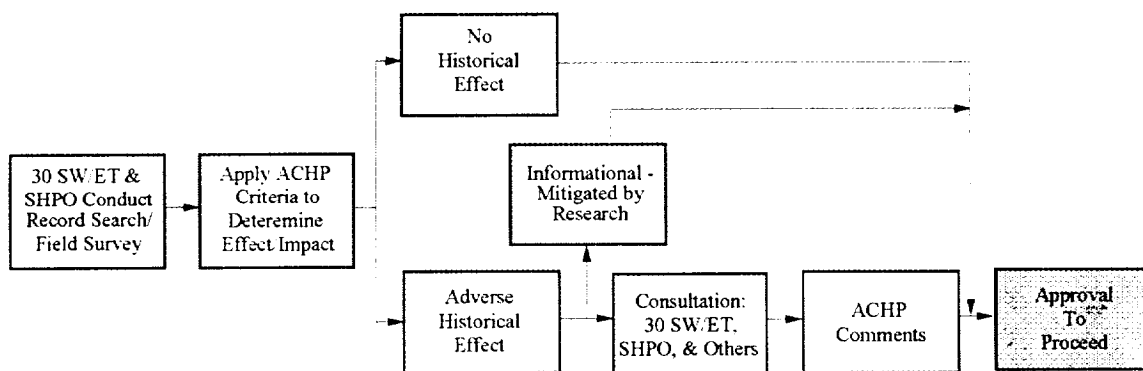


Figure 3.8 State Historic Preservation Office Environmental Approval Process

The Department of Defense publishes a useful "Reference Guide and Workshop Manual," DOD Management of Cultural and Natural Resources: Air Force Module. The commercial user should also review "National Register Bulletin 15: Guidelines for Applying the National Register Criteria for Evaluation," published by the National Park Service.

## Regional Water Quality Control Board and State Water Resource Control Board

The Federal Clean Water Act (CWA) prohibits discharging pollutants (including sewage sludge) from a point source into navigable waters except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit, described in 40 CFR § 122. The legal definition of navigable waters reaches upstream to any small ditch or stream that may flow into major rivers or the ocean. The Act defines primary and secondary standards for water quality. Treated water discharge to surface water or to the ocean must meet requirements of a NPDES permit, which ensures that discharged water meets drinking water quality standards at the discharge point.

Although the EPA is responsible for provisions of the CWA, California's NPDES program under the Porter-Cologne Act and the Regional Water Quality Control Boards (WQCB, governed by the State Water Resources Control Board, SWRCB), has EPA approval. EPA has delegated authority for enforcing the CWA to the SWRCB, and hence to the WQCB. Under this program, the WQCB, Central Coast Region, regulates domestic wastewater treatment systems discharging effluent to the surface (including evaporation/percolation ponds), in accordance with the Central Coast Basin Plan (14 March 1975). WQCB Resolution No. 83-12 amends the Central Coast Basin Plan and includes specific recommendations for design of community sewage systems, those having sanitary wastewater discharges greater than 2,500 gallons per day average daily flow. Larger sewage systems would be operated in accordance with WQCB Order No. 83-60.

CWA Section 319, a 1987 Amendment, requires states to assess non-point source water pollution problems and to develop non-point source pollution management programs with controls to improve water quality. These non-point sources include surface runoff from streets, runoff from agricultural activities, runoff from construction activities, and percolation from such sources into the groundwater. The CWA requires the state to update and maintain a State Water Quality Management (WQM) plan, which includes non-point source management and control, and Best Management Practices (BMPs) for these. The SWRCB has prepared a "Nonpoint Source Management Program" and a "Nonpoint Source Assessment Report" to comply. Non-point source planning for a proposed project must be coordinated with WQCB.

Section 402 of the CWA requires permits for stormwater discharges associated with industrial activity, and the EPA has set up regulations for this. The SWRCB adopted a General Industrial

Storm Water Permit requires implementation of stormwater pollution prevention plans, and requires stormwater effluent monitoring, under SWRCB Order No. 91-13-DWQ. A NPDES permit is required under these provisions, if activities involve disturbance of more than five acres of land. A new launch operator on Vandenberg AFB must review the Base Stormwater Pollution Prevention Plan and the Notice of Intent to comply with the terms of the General Permit for discharge of stormwater on the base.

The Porter-Cologne Water Quality Act also defines the state water quality control program, and includes guidelines for groundwater, surface water, and reclaimed water. This Act also protects coastal marine water quality and controls discharges to wetlands, estuaries, and other biologically sensitive areas. The WQCB also enforces these provisions, which augment the WQCB Federal CWA program.

#### Army Corps of Engineers

The Army Corps of Engineers (ACOE) regulates activities involving the nation's waters, as authorized by Section 404 of the CWA, Section 10 of the River and Harbor Act of 1899, and Section 103 of the Marine Protection, Research and Sanctuaries Act. Permits are required for activities in or affecting navigable waters, discharge of dredged or fill material into waters, or transportation of dredged material for purpose of ocean dumping.

The Nationwide Permit 26 to Section 404 of the CWA covers discharges of dredged or fill materials resulting in loss of less than ten acres of US waters not isolated or located in headwaters. This 10-acre threshold applies to wetlands directly filled by discharge of dredge or fill and any wetlands adversely affected by flooding, excavation, or drainage activities associated with construction projects. Impacts from an entire project must be considered in respect to this threshold. Discharges resulting in loss of less than one acre may proceed without notification.

The prospective commercial launch operator will confer with 30 SW/ET to determine if consultation with the ACOE is necessary for his project. If necessary, the first step is preparation of ENG Form 4345. Steps in this ACOE permit procedure are shown in Figure 3.9. This process may take from four to thirteen months depending on the extent of the project and its effect on natural waterways.

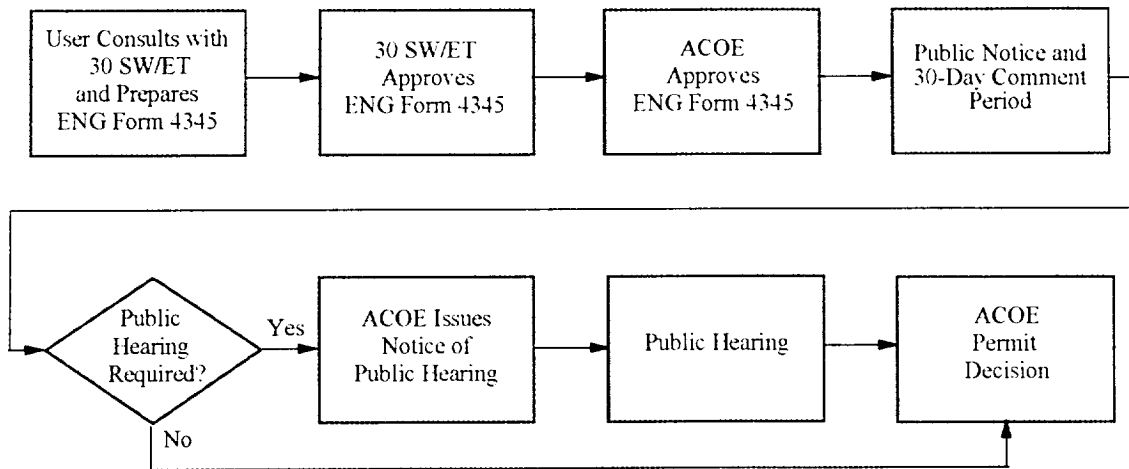


Figure 3.9 US Army Corps of Engineers Permit Process

### 3.3 Vandenberg AFB Safety and Community Planning Process

In parallel with the EIAP, the prospective commercial launch operator initiates a facility siting process through the 30th Space Wing Plans and Programs Office (30 SW/XP). This process is not strictly an environmental process at all; however, the safety evaluation fits into and becomes an intrinsic part of the EIAP public safety evaluation, and the community planning process includes due consideration of both safety and environmental concerns. The initial request letter to the Commander, 30th Space Wing (30 SW/CC) identifies a prioritized list of candidate facilities and/or new construction sites for all required launch program activities. This process includes three parallel procedures, shown in Figure 3.10:

1. The explosive safety siting approval process, which accounts for the quantity-distance standoff requirements for explosive storage and launch facilities, as defined in AFR 127-100.
2. The community planning process, based on land use plans and constraints documented in the Base Comprehensive Plan (which exists for each launch base).
3. Site survey process, as required by AFR 55-31.

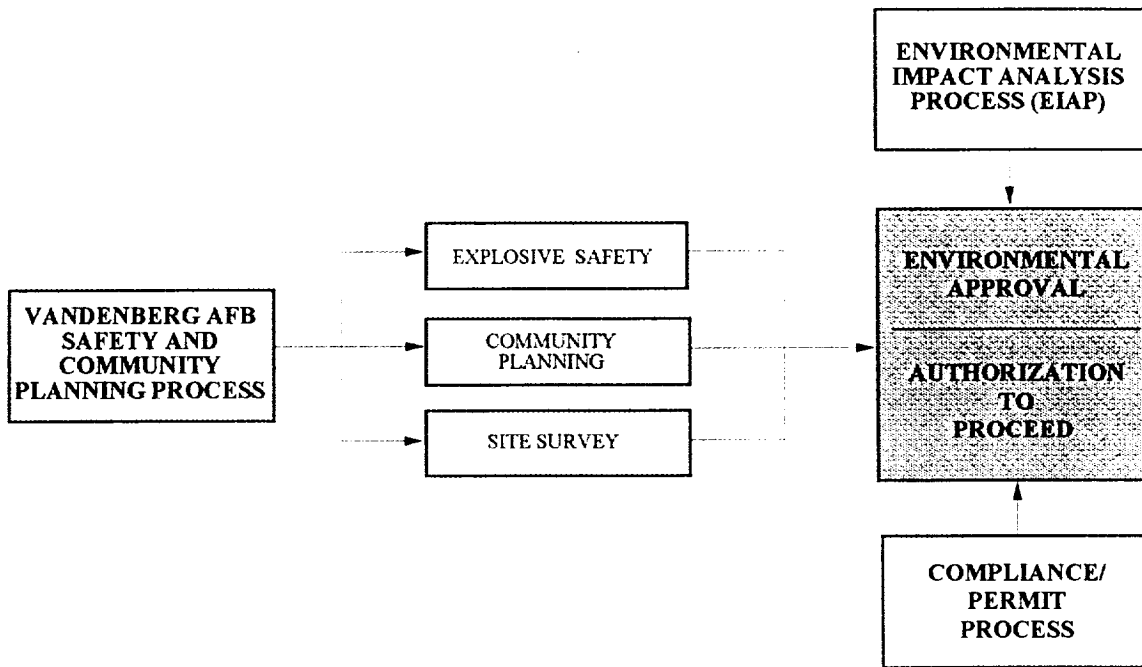


Figure 3.10 Vandenberg AFB Safety and Community Planning Process

The 30 SW/XP Office monitors progress and submits the results of the Vandenberg AFB Safety and Community Planning Processes to the Base Facilities Board. The 30 SW/XP Office acts as the commercial operator's advocate when the Board addresses the commercial operator's request.

As shown in Figure 3.3, the 30th Space Wing Authorization to Proceed with the planned commercial project depends upon on the environmental approval, the Vandenberg AFB Safety and Community Planning approval, and permit approval(s). If good planning, preparation, and execution of the Vandenberg Safety and Community Planning Process is accomplished in parallel with the EIAP and Compliance/Permit Processes, the time-frame between beginning the environmental process and obtaining Air Force Authorization to Proceed will be minimized. Depending on the scope of the program and the Base agencies involved, the Vandenberg AFB Safety and Community Planning process typically takes six to twelve months.

### 3.4 Compliance/Permit Process

Depending on the scope of the program, in addition to the CATEX, EA or EIS, and the Vandenberg AFB Safety and Community Planning Process, reports and permits for issues like

emissions and hazardous waste operations may be required by State and County regulatory agencies. As stated previously, the 30 SW/ET office acts as the single point of contact between the Base and other regulatory agencies. Therefore, the 30 SW/ET may assist the commercial operator with preparation of the required documents; however, the commercial operator is responsible for all permit production and processing costs. The commercial operator submits all permit applications through the 30 SW/ET. Although permits for commercial activities are issued to the Air Force, the commercial operator is legally responsible for complying with the regulations. The Compliance/Permit Process is shown in Figure 3.11 and discussed in the following paragraphs.

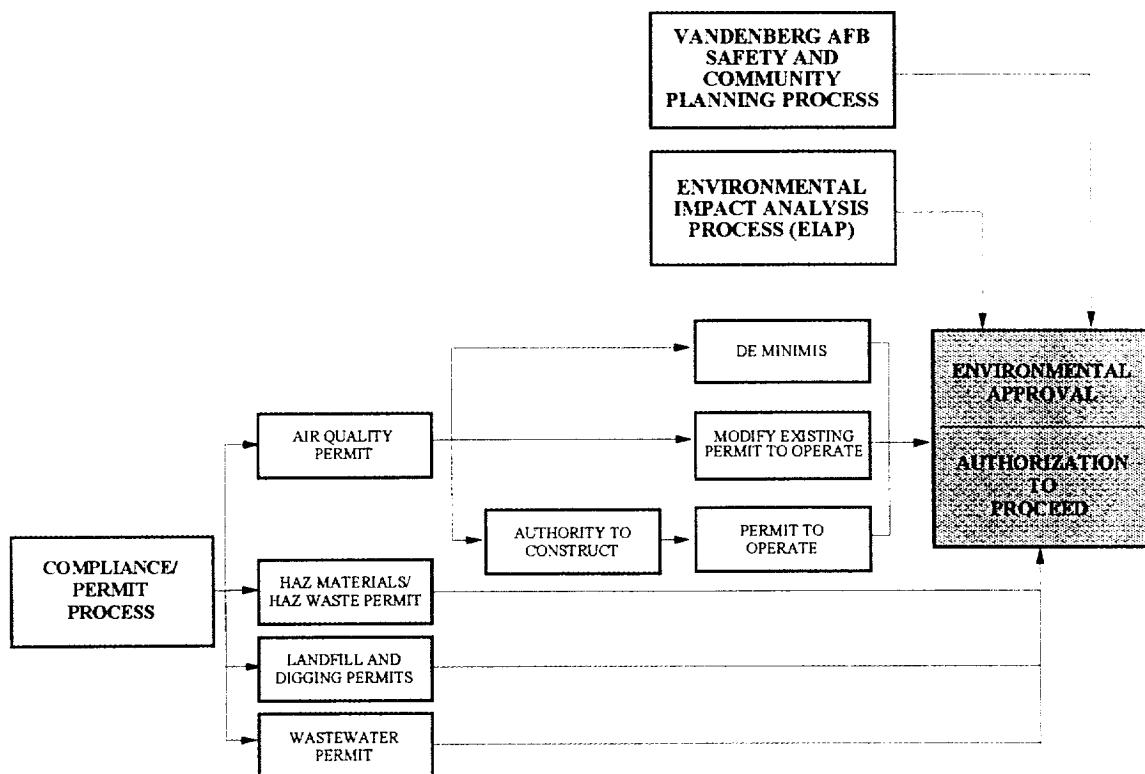


Figure 3.11 Compliance/Permit Process

### 3.4.1 Air Quality Permits

The California Air Resources Board and the US Environmental Protection Agency have established clean air standards and given Air Pollution Control Districts (APCD) primary

responsibility for controlling air pollution from local sources. Air pollution is caused by large and small businesses, motor vehicles, consumer products, and natural sources. In order to develop a comprehensive strategy to achieve clean air, the APCD needs to know how much pollution is caused by each source and must ensure that every business is operated to minimize the air pollution they cause.

Large and small businesses need an APCD permit before constructing, replacing, or operating any equipment or process which may cause air pollution. This includes equipment designed to reduce air pollution.

#### 3.4.1.1 Santa Barbara Air Pollution Control District

The Santa Barbara APCD is the agency responsible for protecting the people and the environment of this county from the effects of air pollution. The APCD implements State and Federal air pollution control laws in order to attain ambient air quality standards and to minimize public exposure to airborne toxins and nuisance odors. The APCD issues permits to businesses such as oil and gas facilities, gas stations, dry cleaners, auto body shops, refinishing operations, printer, and operators of certain gas and oil powered engines. The permits specify conditions to minimize the amount of air pollution caused by these businesses.

Santa Barbara County meets the National Ambient Air Quality Standards (NAAQS) attainment criteria for pollutants Carbon Monoxide (CO), Sulfur Dioxide (SO<sub>2</sub>), Nitrous Oxide (NO<sub>2</sub>), Lead (Pb) and particulate matter less than 10 microns in diameter. The County is designated a non-attainment for NAAQS for Ozone (O<sub>3</sub>). The California Air Resources Board (CARB) has designated the County as in attainment with California Ambient Air Quality Standards (CAAQS) for the pollutants CO, SO<sub>2</sub>, NO<sub>2</sub>, and Pb and non-attainment for Hydrogen Sulfide (H<sub>2</sub>S), O<sub>3</sub>, and particulate matter less than 10 microns in diameter. Since the County, as a whole, is in non attainment for O<sub>3</sub>, not just the immediate area is considered for impact. At Vandenberg AFB, a project is summed as part of the non-permitted aggregate of emission across the Base if emissions exceed 0.1 lb/hr. The increase in emissions must be offset and have best available control technology (BACT)/lowest achievable emission rate (LAER) applied.

#### 3.4.1.2 Types of Air Quality Permits

In the air quality permitting process, there are three possibilities for obtaining an authorization to proceed from the Air Force. The three possibilities are shown in Figure 3.11. The simplest of all possibilities may occur if there is a current permit which can be modified to include the current actions. Then, all that is necessary is to obtain a modified permit from the Santa Barbara County APCD. This option could become complicated if the Best Available Control Technology (BACT) is not currently incorporated into the existing permit, or if there are emission "offsets" over the current permit.

In the second case, the device/facility must have pre-construction monitoring accomplished to evaluate the proposed action's impact on air quality during construction and upon completion of the project. When this is complete, an Authority to Construct (ATC) is required. The ATC ensures that the equipment is designed, constructed, and operated to meet Local, State, and Federal requirements. The user submits an application for the ATC permit to the 30 SW/ET, who reviews the application and forwards it to the Santa Barbara APCD. The APCD will review the application and respond within thirty days to the user providing a determination on the "completeness" of the application. If there is missing or insufficient information in the application, the APCD will identify the problems in their response letter.

When the ATC application is determined to contain all necessary information, the APCD's engineers review the calculations and test results, if any, evaluate the consistency of the project with Local, State, and Federal air pollution control requirements, and prepare a draft ATC. The draft ATC describes how the equipment must be operated to minimize air pollution. The requesting user will review the draft ATC to ensure accuracy and that there is understanding and agreement with the conditions of the permit. Following the review of a revised application (if this was necessary), the APCD will issue a response letter within 30 days of receiving the new information. This begins a clock to process the ATC Permit within 180 days of the date on the letter (assuming no additional information is needed). Once the user receives the ATC permit, it is valid for only one year. If the project is not started within this year, an APCD rule establishes that the permit is no longer valid and the permit expires.

Following completion of the project, a post-construction inspection is made to assure that the results are as expected. This Source Compliance Demonstration Period (SCDP) allows temporary operation for testing, calibration, and demonstration of compliance with conditions of the ATC. Following SCDP, a Permit to Operate (PTO) is issued which allows operation in accordance with all permit conditions and Local, State, and Federal air pollution requirements. The PTO is evaluated by the APCD every three years to determine if the permit needs to be adjusted due to available technologies. If solid or toxic waste products are involved, a waste profile analysis must be performed.

The third case involves the "de minimis" exemption, which avoids the APCD permitting process. If the user can show by rigorous calculation and testing that the equipment or facility will not exceed air quality emission limits of 0.1 lb/hour at the Vandenberg AFB stationary source, the 30 SW/ET may approve the requested actions for the equipment/facility without an air quality permit. There is a total defined limit for a de minimis exemption over a one year period. This option is desirable, since it may more readily support user timelines by avoiding the sometimes lengthy permit approval process.

Depending on the scope of the program and the permits required or de minimis exemption, the Air Quality Permit Process (ATC through PTO) typically takes three to 11 to 16 months.

#### 3.4.2 Hazardous Materials/Hazardous Waste Permit

The US Air Force has permits for generation, storage, transportation and treatment of hazardous waste in accordance with RCRA and the California Hazardous Waste Control Law (HWCL), with the California Environmental Protection Agency (CalEPA), and the California Department of Toxic Substances Control. All facility operators on Vandenberg AFB must comply with the provisions of these permits. Procedures are specified in the Vandenberg AFB Operations Plan 8550S-89 for the proper disposal of hypergolic waste, Polychlorinated Biphenyls (PCBs), asbestos, spent lead-acid batteries, etc. The Santa Barbara County APCD assists in the hazardous waste process by accomplishing inspections and demolition of hazardous waste products, as necessary. The APCD also regulates the compliance of asbestos by accomplishing inspections.

A new user begins the hazardous waste compliance process by consulting with the 30th Space Wing Civil Engineering Group (30 CEG). Some of the necessary steps of the process include:

- Appoint a Collection/Accumulation Point (CAP) Manager to take charge of all hazardous waste generated at the site.
- Set up site procedures for identification, accumulation, labeling, storage, record keeping, transfer, disposal and personnel training, in accord with Vandenberg AFB Operations Plan 8550S-89, and gain approval for same by 30 CEG.
- Prepare hazardous waste Profile Sheets, using Organizational Shop Code.

#### 3.4.3 Wastewater Permit

A Wastewater Discharge Permit is required under the CWA and RCRA for facilities and operations which will or may emit wastewater. Under RCRA, an NPDES Permit is required. The California WQCB and the CalEPA administer the permit process. The permit ensures that discharged water meets drinking water quality standards at the discharge point.

An additional permit is required by the US Army Corps of Engineers if the project involves discharging of dredged or fill materials into the nation's navigable waters.

#### 3.4.4 Other Permits

Other permits required may include either, or both, a landfill permit and a digging permit. The specific user's requirements for these permits will be evaluated by 30 SW/ET upon evaluation of the submitted AF Form 813. Therefore, to be assured of an accurate evaluation, the user should be as specific as possible in drafting the AF Form 813.

### 3.5 Environmental Approval Process Timelines

The approximate timelines for the three cases of obtaining an environmental approval (CATEX, EA/FONSI, or EIS/ROD) are shown in Figures 3.12 (The short timeline is shown in green and

the long timeline is in red.). The assumption in the cases of the latter two is that the Vandenberg AFB Safety and Community Planning Process and the Permit Process are accomplished in parallel with EIAP activity. As proposed projects increase in scope, the time-frame for obtaining an environmental approval increases. A CATEX approval may take less than a month, whereas a full EIS could take up to three years to obtain the Record of Decision (ROD). Additionally, the reader should understand that increased outside agency reviews are sometimes "opportunity-driven" by specific workloads in these environmental offices. Therefore, activities involving outside agencies are difficult to effectively predict and schedule (This is an area for environmental process streamlining covered in Section 6.0.).

Activity	Months for Approval (approx.)
Categorical Exclusion (CATEX)	1 2
Environmental Assessment/Finding Of No Significant Impact (EA/FONSI)	3 5
Environmental Impact Statement/ Record of Decision (EIS/ROD)	12 30

Figure 3.12 Environmental Impact Approval Process Timelines

Selected environmental regulatory approval agency timelines are shown in Figure 3.13. These are typical timelines, which may be adjusted depending on the scope of the request. The USFWS and NMFS have a required time in which to respond to requests for approval. The clock begins when the request is received from the user.. As previously stated, it is prudent to identify the agencies needed for approval at the beginning of the process in order to accomplish the approval reviews in parallel.

Figure 3.14 shows the approximate timelines for the Santa Barbara APCD Air Quality Permit Process. The ATC will generally apply to and EIS/ROD option. A modified PTO should be much quicker to obtain than a new permit, depending on the existing permit.









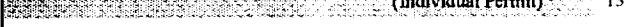
Agency	Months for Approval (approx.)
U.S Fish and Wildlife Service (USFWS)	 4.5 (No More Than 135 Days)
U.S National Marine Fisheries Service (NMFS)	 4.5 (No More Than 135 Days)
California Coastal Commission (CCC)	 4
State Historic Preservation Office (SHPO)	 3
California Environmental Protection Agency (CalEPA)	 3
Regional Water Quality Control Board (WQCB)	 3
Water Resources Control Board (WRCB)	 4
Army Corps of Engineers (ACOE)	 4 (Nationwide Permit)  (Individual Permit) 13

Figure 3.13 Selected Environmental Regulatory Agency Review Timelines

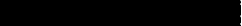

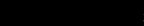
Activity	Months for Approval (approx.)
Authority To Construct (ATC)	 7  12
Permit To Operate (PTO)	 4

Figure 3.14 Air Pollution Control District Air Quality Permit Process Timelines

A typical series of events for an EA/FONSI and an EIS/ROD under the EIAP is shown in Figures 3.15 and 3.16, respectively. The EA/FONSI route does not require a public meeting, but does require a 30-day public comment period. (Note: A public meeting can be very valuable to the commercial operator in obtaining public opinion on the project, which can be used to re-scope the project, etc.) During the 30-day public comment period, copies of the EA must be made available at libraries, clearing houses, etc. Copies of the document must also be sent to the Environmental Protection Agency and other interested parties. The EIS/ROD route requires both a public meeting and the 30-day public notice period.

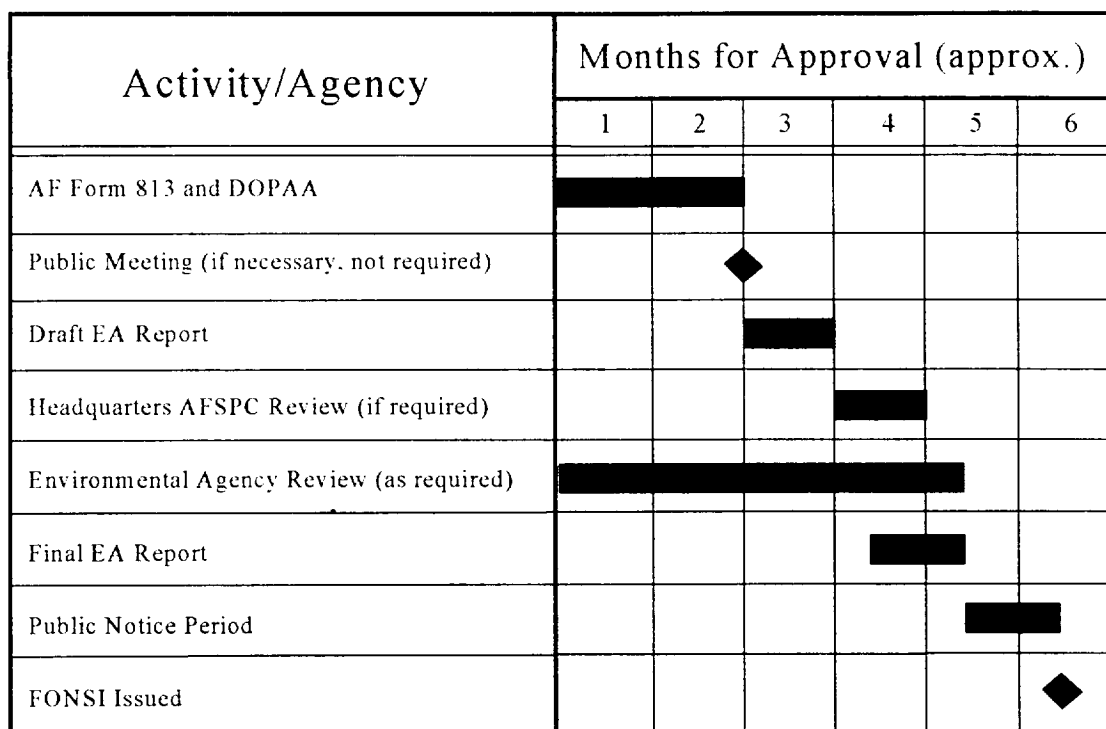


Figure 3.15 Environmental Assessment/Finding Of No Significant Impact Approval Timelines

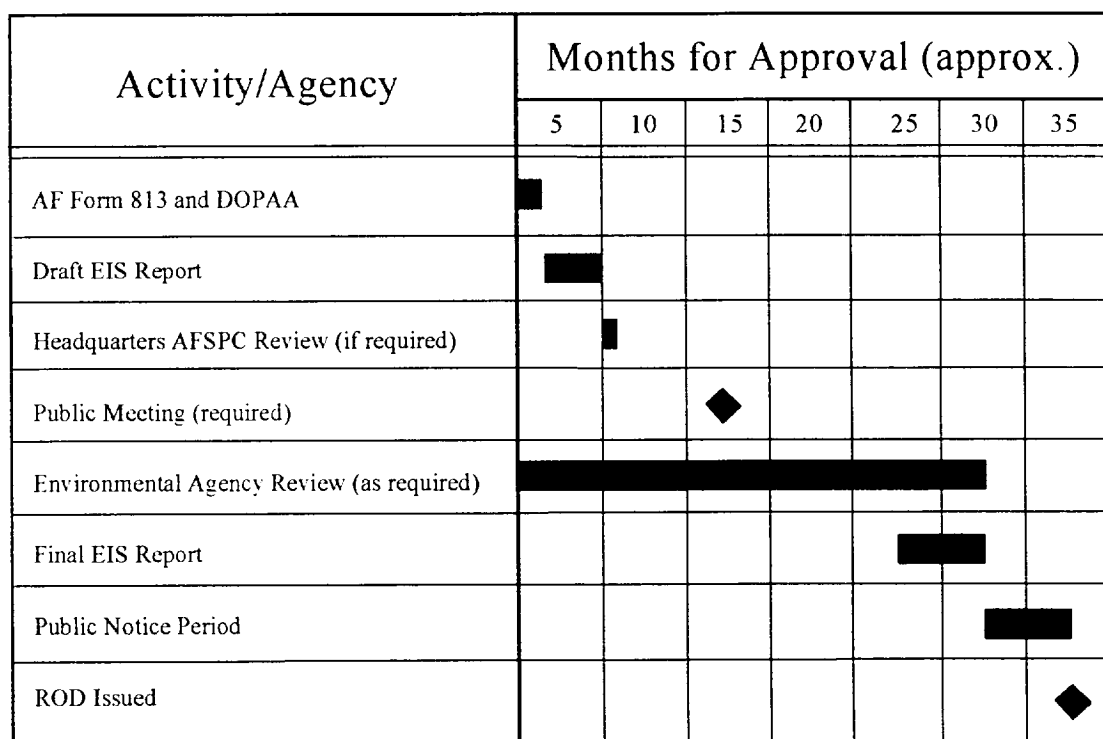


Figure 3.16 Environmental Impact Statement/Record of Decision Approval Timelines

Both the EA/FONSI and EIS/ROD timelines shown in Figures 3.14 and 3.15, respectively, assume the commercial user is managing their environmental schedule efficiently. It is very important that Base actions relating to the Vandenberg AFB Safety and Community Planning Process and actions relating to the Compliance/Permit Process are being accomplished in parallel with the EIAP.

If a good environmental attitude and approach is used in the accomplishing the three processes (EIAP, Vandenberg Safety and Community Planning Process, and Compliance/Permit Process) required for an Air Force Authorization to Proceed, the commercial user should receive an approval in the shortest amount of time.

**PART II:  
PILOT SPACE  
LAUNCH VEHICLE  
ENVIRONMENTAL  
PROCESS**

**SECTION 4.0  
PILOT SPACE LAUNCH VEHICLE  
SYSTEM CONCEPTS**

ORIGINAL PAGE 10  
OF 1000 PAGES

## **PART II:**

# **PILOT SPACE LAUNCH VEHICLE ENVIRONMENTAL PROCESS**

## **4.0 PILOT SPACE LAUNCH VEHICLE SYSTEM CONCEPTS**

*Operations planning, processing facility renovation, launch facility design and development, environmental assessment effort, and facilities operations were not funded under this study.*

### **4.1 Pilot Space Launch Vehicle Assumptions**

The Pilot Space Launch Vehicle (PSLV) consists of a launch vehicle, an upper stage, and a satellite vehicle. The launch vehicle and an upper stage are part of a proposed commercial effort to launch from Vandenberg AFB. The satellite vehicle is an existing NASA Meteorological Satellite (METSAT) which has launched from Space Launch Complex - 3 on Vandenberg AFB aboard an Atlas launch vehicle.

A description of the processing facilities, ground support equipment (GSE), launch vehicle, and satellite vehicle is covered in this section. Additionally, ground processing plans are described for the vehicle in this section. Emphasis is placed on the areas which may cause impacts to the environmental process. In Section 5.0, Pilot Space Launch Vehicle Environmental Process, the environmental process described in Section 3.0 is applied to the PSLV to obtain facility, GSE, and PSLV environmental approvals to accomplish the launch objectives.

The PSLV program uses facilities and processes currently available at Vandenberg AFB. The following assumptions are used to define the PSLV program for this study:

- The launch program is a new program on the Western Range.
- Existing facilities are used for processing. (A planned launch facility is described, and its build schedule is assumed to meet user requirements for a launch.)
- Modifications of the ground support equipment are required.

## 4.2 Description of Processing Facilities and Ground Support Equipment

The processing facilities and the ground support equipment (GSE) planned for PSLV processing are described in this section.

### 4.2.1 Description of Processing Facility

The Pilot launch vehicle and satellite vehicle are being processed in a typical processing facility available at Vandenberg AFB. The facility meets all the needs for processing both the launch vehicle and the satellite vehicle. Preliminary discussions with the 30th Space Wing Environmental Management Office (30 SW/ET) indicates that processing different user hardware under a common WCSC safety plan is acceptable.

The processing facility is available for use as a booster and payload processing facility, a fairing processing and storage facility, and a payload encapsulation facility. A Launch Control Center (LCC) is also available in the facility. As shown in Figure 4.1 and 4.2, there is a booster Receiving and Inspection Area (R&IA) for up to two Castor 120<sup>TM</sup> type boosters, a Booster Processing Area (BPA) for horizontal integration, and three Payload Processing Cells (PPC) payload cells for payload processing. The payload cells, originally planned for Space Shuttle payload integration, will accommodate payload fairing build-up, encapsulation, and storage.

The facility has one large door into the Booster/Payload Receiving and Inspection Area (R&IA). This configuration, although not ideal, can be integrated to support activity within the area, while allowing hardware traffic through to the BPA and access to the three PPCs. Transporting hardware through the R&IA can be accomplished even when there is a booster located there by using marked "stay out areas." Dollies will move launch vehicles and satellite vehicles into the BPA. Launch Vehicles are processed in the BPA, and satellites are placed into one of the three PPCs. All movement of hardware is accomplished by procedure through an integrated schedule.

As shown in 4.2, the Payload Encapsulation Area (PEA) is located at the opposite end of the processing from the R&IA. The "upstairs" of the PEA is a Payload Fairing Cleaning and Storage (PLFCS) area. Up to two payload fairings can be stored in the PLFCS area while one other fairing is processed. When payload testing and processing are completed, the payload is encapsulated in the fairing for transport to the pad.

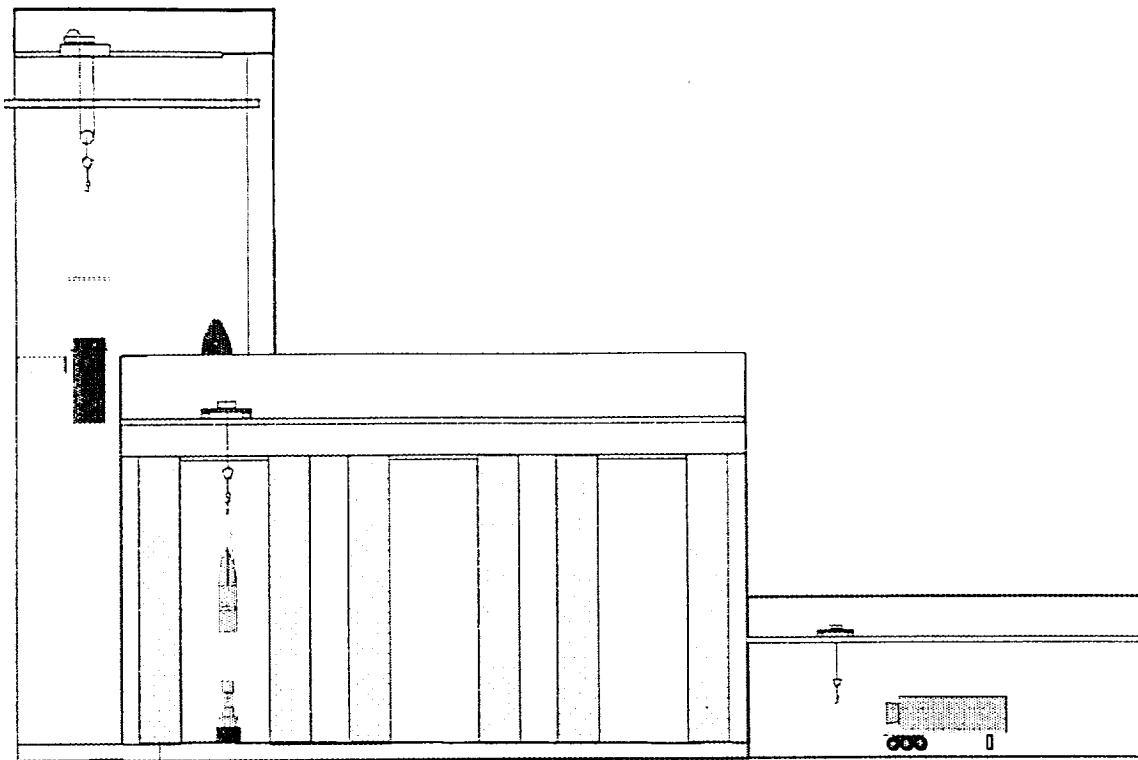


Figure 4.1 Processing Facility Multi-Use Concept

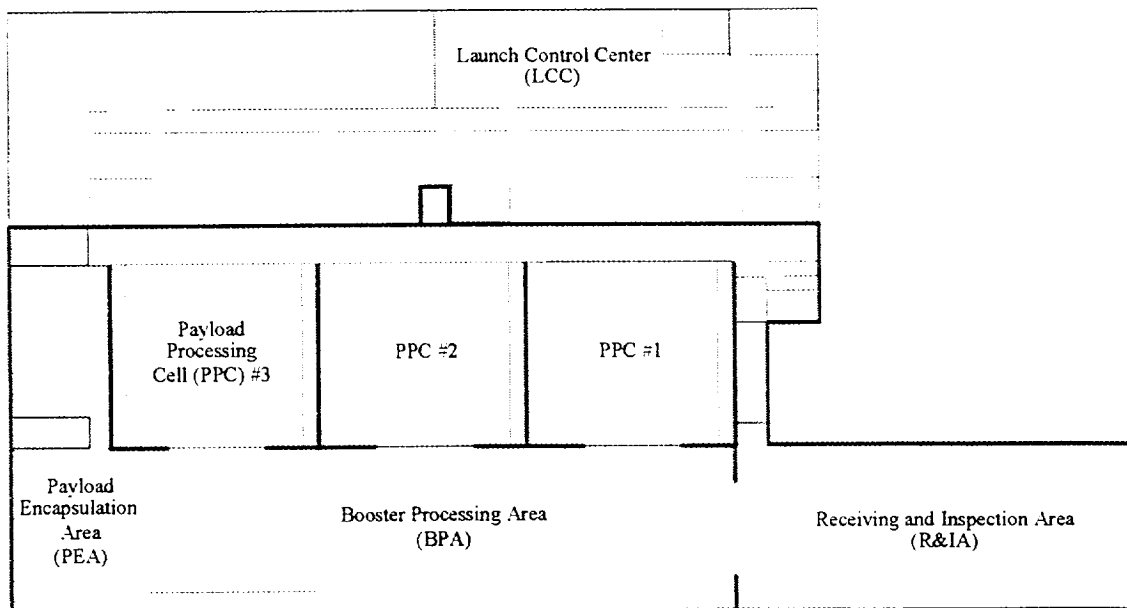


Figure 4.2 Processing Facility Floor Plan Showing Uses of Facility for Launch Vehicle, Satellite Vehicle, and Payload Fairing Processing and the Launch Control Center

#### 4.2.2 Description of Launch Facility

The Launch Facility is planned to be built on the site of the proposed SLC-7 Titan IV/Centaur launch site on South Vandenberg AFB. The Titan IV/Centaur at Vandenberg AFB was abandoned in 1989 as a viable government program, but not before a full EIS was completed. The WCSC is planning to prepare the site to accept the first of three launch pads by July 1995. The launch pads will be capable of launching DOD, commercial, and university launch vehicles (including the PSLV for this study). The middle launch pad will be a flat pad for users who desire to use rail launchers. WCSC prefers to build a launch facility, as opposed to converting an existing site to their needs, because no existing site allows the commercial community the flexibility to support the anticipated launch rate.

WCSC and its contractors are in the process of accomplishing an EA for the proposed launch facility, therefore, it is a good candidate for studying the environmental approval process both from a facility construction perspective and for users launching from the facility once completed.

#### 4.2.3 Description of Ground Support Equipment

The hydrazine for the upper stage will be transported from the base storage area to the launch pad in either a service cart, storage drums, or the flight Equipment Section. The service cart will be purged and cleaned by reverse pumping of all the pipes, pumps and handling equipment using nitrogen. The material removed from the service cart will be disposed of as hazardous waste in accordance with Vandenberg AFB regulations, permits and procedures. A toxic hazard corridor will be defined for the transfer and movement of hydrazine for the storage area to the launch pad. A toxic hazard corridor is an area where predicted concentrations of propellant vapors may exceed acceptable exposure limits. The hydrazine must be transferred from barrels to the cart. Based on an unconfined spill of 500 lbs of hydrazine during worst case weather conditions (a stable night), a Tier One hazard corridor would extend slightly over 1,000 feet downwind. A potential hazard corridor would exist around the location where the fuel is transferred, along a haul route, or during other conditions as specified in Western Range Regulation 127-1.

### 4.3 Description of Pilot Space Launch Vehicle

The PSLV for this study is shown in Figure 4.3. The Launch Vehicle (LV) is composed of two Castor 120<sup>TM</sup> solid rocket stages and four Castor IVA strap-on solids built by the Thiokol Corporation. There is an upper stage incorporating a Transfer Orbit Stage (TOS) vehicle built by the Orbital Science Corporation. This is composed of a United Technologies Orbus 21<sup>TM</sup> Equipment Section Boost Motor (ESBM) and an Equipment Section (ES) with a hydrazine fueled Attitude Control System (ACS). The satellite vehicle is the Meteorological Satellite (METSAT) built by Martin Marietta Aerospace Corporation. A description of the LV, TOS, SV, and the issues for obtaining environmental approvals for operations are covered in the following paragraphs. Additionally, the Ground Support Equipment and processing facilities are described, and their particular environmental issues are discussed. Lastly, an overview of the ground processing to launch is provided.

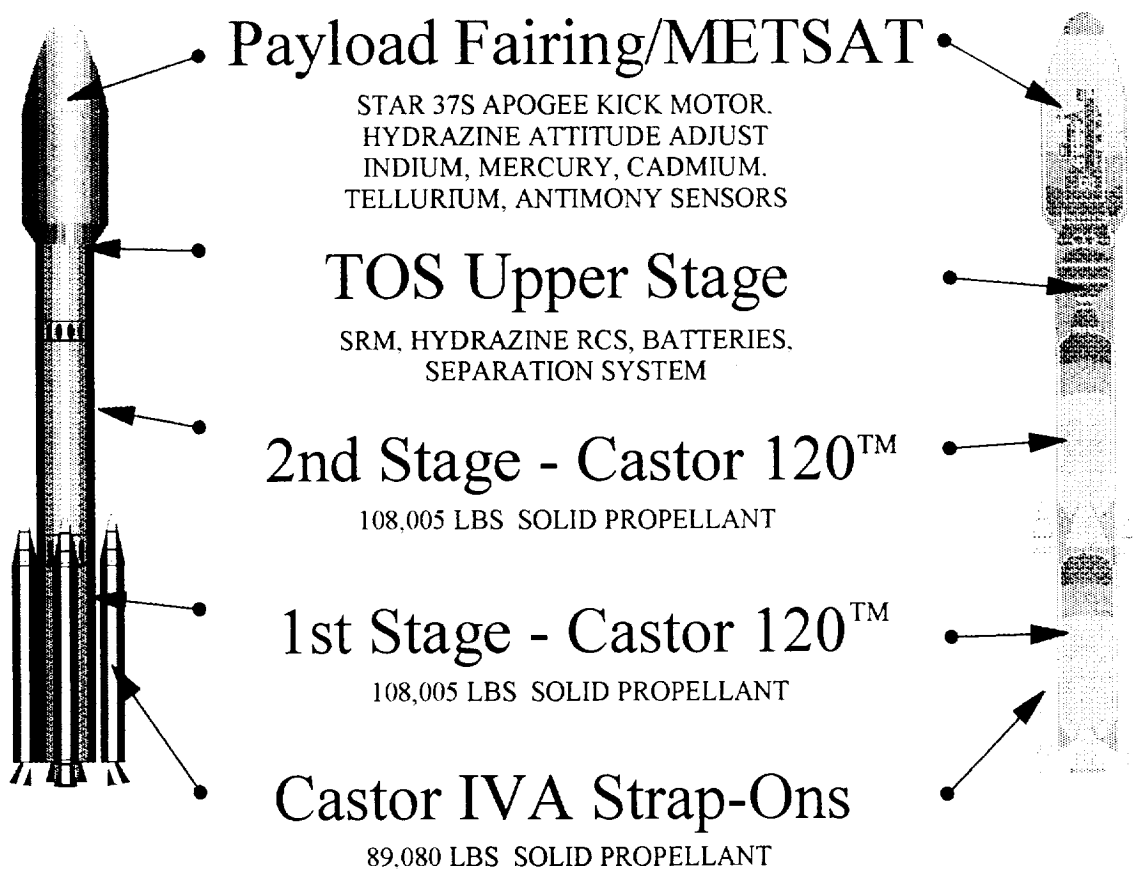


Figure 4.3 Pilot Space Launch Vehicle

#### 4.3.1 Launch Vehicle

The pilot launch vehicle is composed of two classes of solid rocket propellant stages. Each of the components have characteristics which will require attention in the environmental assessment process.

##### 4.3.1.1 Core Launch Vehicle

The PSLV is composed of two Castor 120<sup>TM</sup> stages, each carrying 108,005 lbs of solid propellant. The solid fuel is hydroxyl terminated polybutadiene (HTPB). The oxidizer is an 88% solid compound of ammonium perchlorate/aluminum powder. The propellant is in the DOD explosive Class 1.3 (burns without exploding). The principle exhaust products are hydrogen chloride (HCl), aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), and carbon monoxide (CO). The booster also has four Castor IVA solid rocket motor strap-ons carrying a total of 89,080 lbs (22,270 lb each) of propellant. The Castor 120<sup>TM</sup> utilizes a 3000 psi helium cold gas blowdown Thrust Vector Control (TVC) system, two 300 grain linear shaped charge destruct system (Class A explosives), and an interface section with pyrotechnic ordnance separation system using 14.25 gr/ft PBXN-5. It is planned for the TVC system to be loaded with propellant and sealed before shipping the vehicle to the launch facility.

##### 4.3.1.2 Launch Vehicle Strap-Ons

The Castor IVA uses the same propellant as the Castor 120<sup>TM</sup>, but does not have a TVC system. The Castor IVA does have destruct and separation ordnance which is controlled by the core launch vehicle electronics.

#### 4.3.2 Upper Stage

The upper stage is the Orbus 21<sup>TM</sup>. The stage contains an Equipment Section Boost Motor (ESBM), which contains 22,000 lbs of solid propellant. The solid fuel is HTPB. The oxidizer is an 88% solid compound of ammonium perchlorate/aluminum powder. The propellant is in the

explosive class 1.3. The principle exhaust products are hydrogen chloride (HCl), aluminum oxide ( $\text{Al}_2\text{O}_3$ ), and carbon monoxide (CO).

The ESBM uses an electro-mechanical TVC system. The Attitude Control System (ACS) uses up to 780 lbs of hydrazine ( $\text{N}_2\text{H}_4$ ) as fuel for the thrusters of the ACS. The hydrazine is pressurized by gaseous nitrogen ( $\text{N}_2$ ), and passed over a catalytic bed, which results in the hydrazine converting to ammonia ( $\text{NH}_3$ ), hydrogen ( $\text{H}_2$ ) and  $\text{N}_2$ . The upper stage contains a 300 grain linear shaped charge separation system.

#### 4.3.3 Satellite Vehicle

The METSAT contains many items of environmental concern. These include the STAR 37S apogee kick motor which contains approximately 2,000 lbs of solid propellant, the Hydrazine Attitude Adjust System, and various sensors containing rare elements such as indium, mercury, antimony, and tellurium.

### 4.4 Space Hardware Processing

This section identifies the top-level activities required for launch vehicle and satellite vehicle processing on Vandenberg AFB. First, a general overview is covered, then the planned ground processing flow is described for the PSLV of this study.

#### 4.4.1 General Processing Overview

An overview of the space hardware processing operations is shown at a very high level in Figure 4.4. The process is broken down into three "phases": Requirements Definition, Requirements Identification & Response, and Modifications and Operations.

- I. *Requirements Definition.* In the User Requirements Definition Phase, the user must identify requirements for support at Vandenberg AFB.

II. *Requirements Identification & Response.* In the Requirements Identification & Response Phase, the user needs a response to requirements in four possible categories:

- a. Interface Control Requirements. This category addresses user interfaces with all the facility capabilities of the Spaceport. This involves detailed description of all the interfaces required, including space/access, handling, electrical, liquids, pneumatics, facility environmental control, safety, security, communications and cabling. This also includes definition of any interfaces that must be verified before use, and agreement on how these interfaces will be verified, and agreement on the proof of verification. These requirements are needed to assure the processing and launch facilities have the necessary interfaces and to allow time for reassessment of the requirements and/or modifications of the launch vehicle/satellite vehicle interfaces and/or modification of the ground support systems.

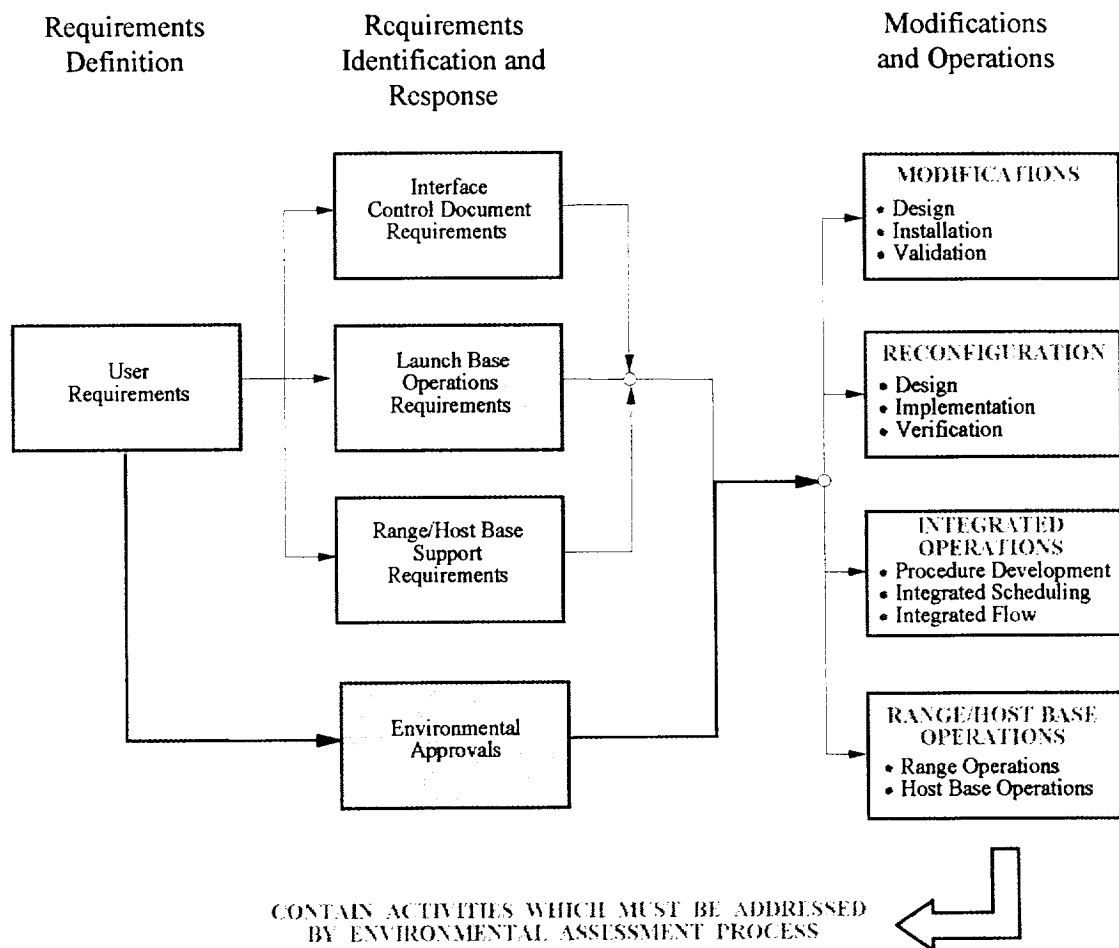


Figure 4.4 Space Hardware Processing Overview

- b. Launch Base Operations Requirements. This category covers operations support covering any assistance needed from the support contractors and includes a functional flow and planning level schedule covering those tasks requiring support, the resources required, compliance documents, identification of processing constraints, and timing of the support need. These requirements are needed to assure availability of the support and timely allocation and scheduling of resources. These operations processes cover the entire scope of possibilities from first arrival at Vandenberg AFB of support equipment up to and including vehicle processing in the processing facility, launch facility processing, and post-launch assessments and data analysis.

Also included in these requirements are any Memoranda of Agreement or Understanding that must be consummated for sharing or use of equipment not in the users inventory, but in the inventory of a WCSC Consortium member.

Finally, any special training and certification of personnel to be provided through WCSC or its subcontractors.

- c. Range/Host Base Support Requirements. This category identifies support required by the Western Range and Vandenberg AFB. These include the entire spectrum of requirements for telemetry, radar, data analysis, base laboratories, hospital support, cars and trucks, lifting devices, guards, and any other kind of support not available at either the processing facility or launch facility. These areas of support include functions that can only be performed at Vandenberg AFB.
- d. Environmental Approvals. This category refers to environmental impacts of the user operations processes at Vandenberg AFB. Each portion of the operations may be part of the environmental process. For example, modification of the ground support system, reconfiguration of the facility support system, Range and Host Base support functions, and hazardous materials transfers.

III. *Modifications & Operations.* All of the Requirements Response phase activities must be completed before this Phase can be completed. As shown in Figure 4-4, this phase includes the design, installation, and validation of any modifications to the facilities, configuration and validation of any re-configurable support capabilities, development and/or modification of any support procedures, and ground support interfaces. All of these must be supported by integrated schedules to assure that all resources are ready and activities proceed as planned.

The space hardware processing overview of Figure 4.4 shows the many interfaces with the environmental system during the duration of a program at Vandenberg AFB. The complexity of activities illustrated in the diagram indicates that good planning is needed to complete the desired operation(s). Virtually everything the user needs to do in order to complete the mission. The user must be motivated to obtain the most complete information on the necessary actions. This information is required by regulators before they can approve activities related to commercial space launches. The environmental agencies are aware of their responsibility to ensure compliance with Federal, State, and County Regulations, and also assist entrepreneurs in achieving their goals.

#### 4.4.2 Ground Processing

The PSLV in this report could be launched from one of two locations. A determination of environmental cost and time is evaluated to determine which launch pad will be used. The options are to use a new planned launch facility or to use an existing government launch facility and modify it for commercial use. Considerable environmental work has been completed for the new commercial site, minimizing launch pad construction costs and schedule concerns. The second option is to use the existing launch mount at Space Launch Complex - 6 (SLC-6). The SLC-6 facility would necessarily need to undergo modifications; however, the environmental concerns are thought to be significantly less at this location.

The first launch facility option is used in this study, since it offers the benefit of describing a real-time environmental effort to obtain an approval for construction. The timelines of completing construction is assumed acceptable to the users of the PSLV.

Both of the options for launching the PSLV would make use of the same pre-launch processing facility to process the space hardware prior to transporting the vehicle to the launch pad for launch. The Castor 120<sup>TM</sup>, Castor IVA, Orbus 21<sup>TM</sup> solid rocket motors and the payload and fairing will be delivered to Vandenberg AFB by truck or rail. A planned ground processing flow is described in the following paragraphs.

A typical processing flow, as shown in Figure 4.5, begins when the booster and payload arrive at the launch base and are moved to the processing facility for inspection, testing, and propellant loading and pressurization (if applicable). The payload is placed in one of the processing cells

for testing and servicing, while the booster occupies a large highbay for any receiving inspections and testing required before moving to the launch pad. The payload fairing can be delivered "in the round," or in sections for build up at the processing facility in the payload cell or in the payload encapsulation area.

Following processing, the launch vehicle is transported over roads to the launch facility for erection on the launch mount. The encapsulated satellite vehicle is then transported to the launch facility and mated to the launch vehicle. A weather shelter, or mobile service tower, is erected around the integrated vehicle for protection from the elements. After final launch preparations are completed, the weather shelter is removed and countdown preparations begin. Total time on stand varies from 15 to 30 days depending on the user.

Preparations for the next launch vehicle begin immediately following the launch. The pad is refurbished and the appropriate launch mount interface is installed to support the next launch vehicle.

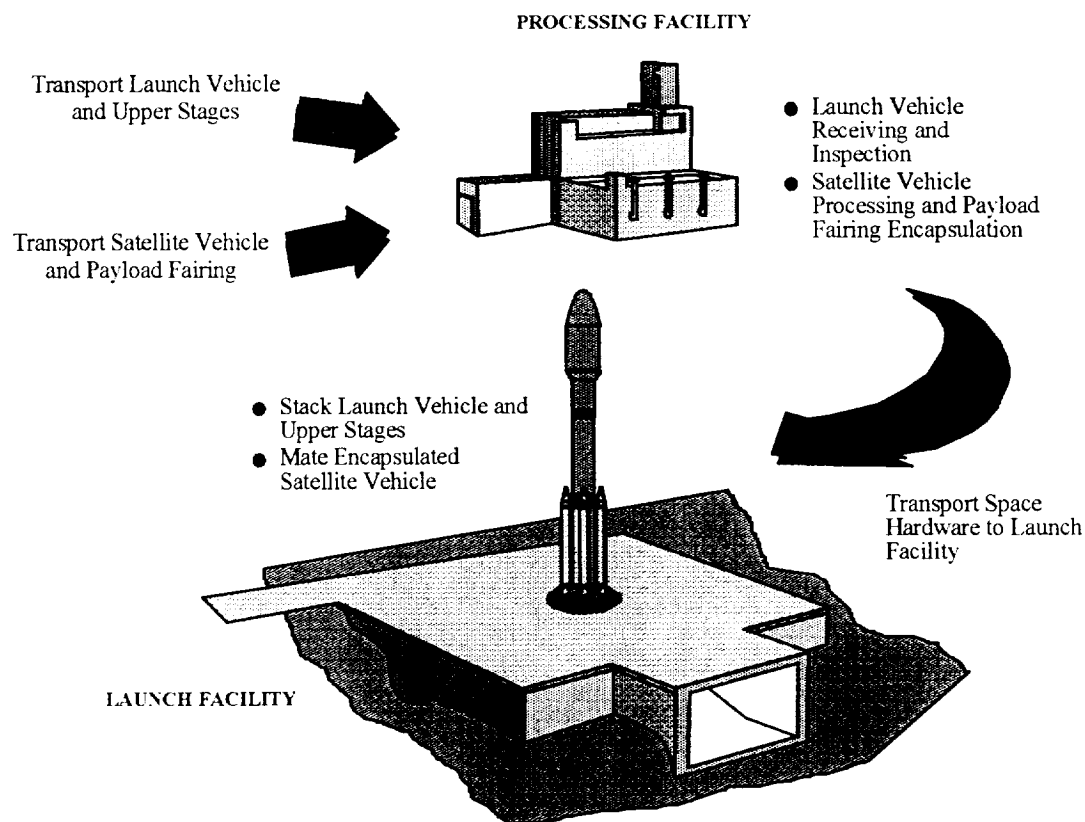


Figure 4.5 Ground Processing Flow: Launch Vehicle and Satellite Vehicle Arrive at the Processing Facility, Complete Processing, and are Transported to the Launch Facility

SECTION 5.0  
PILOT SPACE LAUNCH VEHICLE  
ENVIRONMENTAL PROCESS

## **5.0 PILOT SPACE LAUNCH VEHICLE ENVIRONMENTAL PROCESSES**

*The environmental process planning and documentation efforts were not funded by this study for either the processing facility or the launch facility.*

### **5.1 Requirements for Environmental Process**

As described in Section 2.0, Vandenberg AFB, County, State, and Federal Agencies are in charge of regulating and controlling environmental impacts through specific licensing processes. The most all-encompassing environmental procedure is the Environmental Impact Analysis Process (EIAP, described in Section 3.0), which is covered by the National Environmental Policy Act (NEPA), 42 USC §§ 4321 - 4347.

For the PSLV, we will assume that commercial launch activities on Vandenberg AFB are approved Federal activities (because of the Commercial Space Launch Act), and compliance with NEPA is required. Additionally, we will assume compliance with the California Environmental Quality Act (CEQA) process is not necessary. This is important, since CEQA is procedurally more difficult, time-consuming, and costly (perhaps by a factor of two). (As of this writing a determination has not been made whether commercial space users on Vandenberg AFB will be governed by NEPA or NEPA and CEQA). The Clean Air Act amendments of 1990 require the Air Force to conform to the State implementation plan for air quality. Therefore, the Federal format for consistency discussion is described as parallel to CEQA. Likewise, application for permits under RCRA and CWA also follow the rules of the State of California.

This section covers the environmental process for the processing facilities, ground support equipment, and the PSLV. The reader should refer to Section 2.0, Environmental Laws, Regulations, and Approval Authorities; Section 3.0, Environmental Process; and Section 4.0, Pilot Space Launch Vehicle System Concepts, during the course of reading this section.

### **5.2 Environmental Process Approach**

In order to accomplish the launch mission of the PSLV, the three main processes to obtain an environmental approval (shown in Figure 3.1 of Section 3.0) must be addressed to proceed with

space hardware processing and launch operations at Vandenberg AFB. The project manager and environmental team need to continuously look at every activity as a possible effect on the environment and help to mitigate any potential environmental concerns into the construction and operations plans.

All environmental concerns and issues are identified during an environmental assessment process. Environmental assessments (EA) and Environmental Impact Statements (EIS) performed for similar projects are useful in identifying the potentially important environmental issues. We have reviewed the EA's and EIS's from several relevant past and present Vandenberg AFB missile launch projects, to assist in identifying the environmental issues and impacts.

Preliminary project planning consists of first describing the proposed project by systematically documenting the systems, subsystems, and components that will be included in the project. The next major step is to plan the required sequence of activities, their location, and required equipment from design through operation and maintenance. A relatively simple extension of this process is to correlate the requisite activities and equipment, both for construction and operations, with the potential environmental effects. Then, the environmental coordination process can be focused on the narrowed scope of issues. Impacts and issues generally result from disturbances of the human environment and the residuals of operations and maintenance. We have performed the preliminary project planning for this pilot project in parallel with that for the WCSC's proposed launch facility. This enables us to double-check our findings here with ongoing experience.

A systematic approach to the environmental process is represented in the Environmental Planning Flow Chart of Figure 5.1. The diagram shows how a user could develop a list of the potentially significant environmental impacts and issues associated with the project activities and equipment. Each of the significant area details should be continually updated as the project progresses.

A comprehensive chart could be prepared for the general case of commercial launches at Vandenberg AFB and made available as a tool for project environmental planners. This type of environmental systems analysis tool is developed and incorporated into the Automated Data-Driven Environmental Approval Process Tool (ADEPT) software, discussed in Section 7.0.

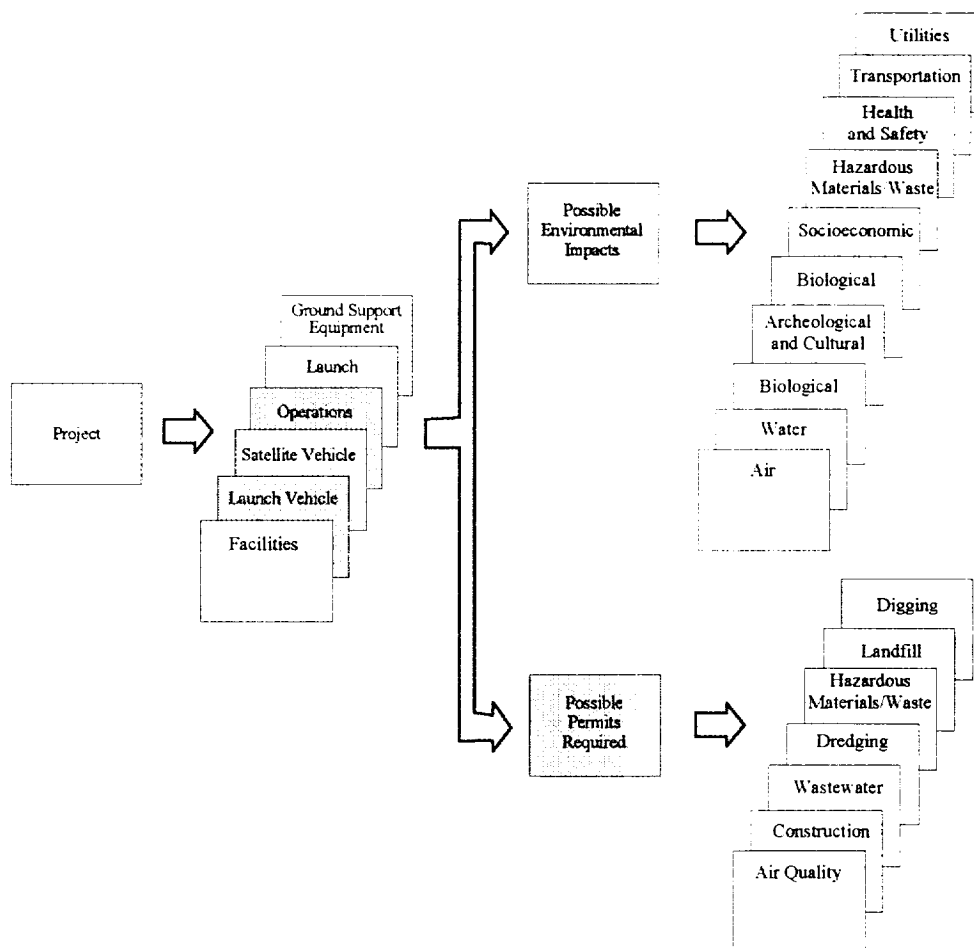


Figure 5.1 Environmental Planning Flow Chart

### 5.3 Facilities and Ground Support Equipment

Construction of the processing facility is not required; however, modifications to the facility may be required due to specific user requirements. Construction of the launch facility is planned at a site approved by the Air Force as a possible location for commercial space launches from Vandenberg AFB. Final approval for construction at this site is determined by Air Force management and an environmental approval.

Construction-related traffic on-base and off-base could have impacts on the environment which must be addressed and evaluated. Operation of the processing facility and the launch facility will result in vehicle and equipment emissions. Utilities and control of potential hazardous materials may also result in environmental issues.

In addition to environmental concerns at each of these facilities once they are operational, there are environmental issues during renovation or construction, such as: (1) air quality - fugitive dust and pollutant emissions from vehicle internal combustion engines, and (2) increased traffic.

#### 5.3.1 Traffic

Increased traffic off the project site includes both privately-operated vehicles (POV), and commuting vehicles such as van pools, automobiles used for errands, trucks used for delivery and moving goods, and heavy construction vehicles. Mitigation measures to control these impacts can be suggested by the user, such as commitments to keep heavy construction vehicles at the site for their entire use period, use of van pools for worker transportation, or washing dump trucks prior to leaving the site.

#### 5.3.2 Facility Modifications and Construction

This section addresses the modifications to the processing facility and the construction of the launch facility to support the PSLV. This example portrays a possible path for achieving an environmental approval. It should not be misunderstood as the only path to completing the environmental process. Construction at the launch facility, modifications at the processing facility, and Ground Support Equipment (GSE) will include activities which affect the environment, such as:

- Construction of the launch mount.
- Construction of launch support facilities.
- Roadway and/or parking area construction.
- Security fencing installation.
- Repair or modifications of utilities, such as electrical, telephone, water, & septic.
- Repair or modifications of communications and data lines, cables, & equipment.
- Painting and coating of buildings and other equipment.

#### 5.3.2.1 Processing Facility

The processing facility described in Section 4.0, requires only minor modifications for use by the commercial users of the study PSLV.. Since these are minor in nature, the Environmental Approval takes the form of an AF Form 813, which is returned with a Categorical Exclusion (CATEX) certification. The 30 SW/ET can determine this course of action, since the facility has had a previous approval for operations in a larger capacity than the PSLV in this study. The processing facility was planned for use by the Space Shuttle and had all environmental work, safety sitings, etc. accomplished before the facility was abandoned.. The process for achieving the environmental approval for operations at the processing facility will take approximately one to five months depending on whether the CATEX is certified or an EA is required after review of the AF Form 813 by 30 SW/ET.

For purposes of the PSLV program, the State Historic Preservation Office (SHPO) required a report on the processing facility to document its condition, use during the "cold war period", and planned use of the facility. The SHPO did not require any other information or any other evaluation prior to granting its approval for operations to begin.

#### 5.3.2.2 Launch Facility

The launch facility must be constructed; therefore, an environmental assessment will examine the impacts that would result from the construction. The proposed building site in this case study has had an Environmental Impact Statement (EIS) work accomplished up to a Record of Decision (ROD), although the ROD was not signed. The potential exists for tiering from that Titan IV/Centaur EIS. For the purpose of the PSLV, we will assume the 30 SW/ET has determined an Environmental Assessment (EA) is required to establish the similarity between the current proposed action and the previous action covered by the EIS.

To accomplish the necessary construction at the launch facility, at least some of the following types of equipment may be needed, such as: earth movers, bulldozers, backhoes, dump trucks,

graders, mixers, concrete trucks, vibrators, compactors, asphalt spreaders, rollers, truck-mounted cranes, forklifts, and/or air compressors. Potential impacts associated with the activities include:

- Air quality: fugitive dust, pollutant emissions, particulate exhaust.
- Air quality: pollutant Chlorofluorocarbon (CFC) emissions.
- Worker health and safety.
- Noise impacts.
- Water quality: impacts due to soil erosion, stormwater runoff.
- Flora and fauna: disturbance/destruction of habitat, takes of wildlife/endangered species.
- Hazardous materials/hazardous waste: accidental releases, fuels, paints, solvents, spent batteries; impacts to soil, groundwater, surface water.
- Cultural impacts: disturbance of archaeological, historic, or prehistoric resources.
- Increased solid waste: scrap paper, metal and wood from packaging, and construction activities.

Mitigation measures to avoid and reduce facility construction effects on the environment would likely include:

- Dust suppression measures: engine tune-ups, restricted idling, watering, reduced speeds.
- Mitigation of conditions proposed by US Fish & Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS): improve habitat and/or improve food sources and/or manage launch periods.
- Cultural resources: protect resources, relocate, document significant.
- Spill prevention: compliance with the Vandenberg AFB Hazardous Waste Management Plan, adherence to Hazardous Materials Contingency Plan.
- Water quality and soil erosion prevention, and stormwater control.

## Environmental Assessment Schedule

A schedule to obtain an EIAP approval to begin construction of the launch facility is shown in Figure 5.2. The schedule allows for a public meeting (not required for an EA) and a required 30-day public comments period before a FONSI may be issued. This activity is useful to dampen erroneous local rumors. The public meeting may identify local concerns about the project which could be useful in completing an acceptable community design of the project. A SHPO review is not required since this is a new construction effort. However, if the new facility is in an area with identified historic or prehistoric significance, the SHPO will be involved in the "No Effect Determination".

Activity/Agency	Months for Approval (approx.)								
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
AF Form 813	◆								
Archeology Investigation		■	■	■					
DOPAA (Draft #1 EA)		■	■						
Public Meeting			◆						
Coastal Consistency Determination			■	■	■				
Consult US Fish and Wildlife Services			■	■	■	■	■	■	■
Consult National Marine Fisheries Service (NMFS)			■	■	■	■	■	■	■
WCSC Reviews Draft EA			■						
Air Force Review of Draft #1 EA			■						
Update EA with Comments				■					
Air Force Review of Draft #2 EA				■					
Update EA with Comments					■				
Additional Comments					■	■			
FONSI Issued								◆	

Figure 5.2 Environmental Assessment Schedule for Launch Facility

The 30 SW/ET policy requires other Local, State, and Federal environmental regulators to provide approval for this EA. Some approvals may not require more than routine consultation with 30 SW/ET. It is important to understand that the responsibility to gain these approvals under the EIAP rests on the commercial user. The 30 SW/ET fulfills a service by assisting the user through in the environmental process. The necessary agency approvals for the PSLV are discussed in the following paragraphs.

### Archeological

Disturbance of the land by excavation or grading may cause damage or destruction of cultural (archaeological and historic) resources protected by a series of Federal and State acts. Frequently the issues relate to Indian artifacts on Vandenberg AFB which have been dated to 6,000 BC. The new user must coordinate with both 30 SW/ET (responsible lead) and 30th Civil Engineering Group (30 CEG), which contains the 730 Civil Engineering Squadron (730 CES) Environmental Flight Office (730 CES/CEV). A field investigation is required to identify and evaluate cultural resources within an Area of Potential Effect (APE). If the final result of 730 CES/CEV review is "adverse effects to cultural resources," the project would probably be relocated or delayed about two years for data collection and other mitigation.

The archeological investigation is divided into three phases. During the first phase, the archeological team accomplishes surface soil evaluations to determine possible locations of cultural activity. The team identifies the APEs, if any, for the proposed construction site and they are staked off with a sixty-meter boundary.

The second phase consists of subsurface investigations in areas where the proposed construction will be accomplished. This excavation typically is accomplished on Vandenberg AFB using hand augers. The archeological team and a Native American representative sift through the excavated soil looking for signs of cultural activity. If nothing of significance is found in the construction site, the archeological release is given to begin construction.

During the third phase a recognized archeologist must be present during initial digging in the construction area. The archeologist must have authority to stop work if significant artifacts are discovered.

## Vandenberg Safety and Community Planning

Air Force construction approval procedures substitute for other local government approvals that would be required for siting on commercial lands. These procedures are soundly based on protection of public safety by a well established explosives safety quantity/distance determination for facility siting, a procedure for community planning (or land use) by the Base Master Planning (analogous to community Master Plans throughout the US), and the Facilities Board approval of the site and scope of construction. The Base Master Plan considers the mission of Vandenberg AFB and physical conditions, including seismic, fire, clear zones, explosive quantity distances, and public access. The Base Facilities Board also specifies technical standards for construction.

## Endangered Species and Marine Mammal Protection

A representative of the US Fish and Wildlife Service (USFWS) is at Vandenberg AFB at least two days each week. The USFWS representative is available to users for discussion and consultation on impacts to endangered species. Section 7 of the Endangered Species Act provides administrative procedures for informal and formal consultation on endangered species. The USFWS has the authority to allow the "take" of limited numbers of endangered species in carefully managed situations. Land clearing, excavation, noise, or air quality impacts have potential to threaten listed species.

The National Marine Fisheries Service (NMFS) manages the protection of marine species listed in the Marine Mammals Protection Act. The administrative process for consultation and "take" permits is analogous to Section 7. The nearest NMFS office is in Long Beach, California.

## Coastal Zone Consistency

The California Coastal Commission has authority over coastal zone planning, based on the Federal Coastal Zone Management Act. The Air Force must be consistent as practicable to the

policies, rules, and precedents for protection of coastal resources - water quality, recreational use, flood control, storm protection, and visual resources. As a new commercial user, the PSLV entrepreneur must prepare a permit or "Consistency Certification" which would include consideration of the planned construction activities. The documentation is forwarded by the 30 SW/ET to the Coastal Commission for review. The Coastal Commission's Staff Report and Recommendations may place conditions on the design, construction, and operation of the commercial space launch facility. The Commission makes a ruling on the Consistency Certification or permit at a public hearing.

#### Air Quality Permit

As discussed in Section 2.0, the Air Force 30 SW/ET coordinates all required submittals to the Santa Barbara County Air Pollution Control district (APCD) regarding potential air quality impacts, proposed control, and mitigation measures. The Federal Clean Air Act amendments provide for Federal conformity to State rules.

Of concern during construction is the fugitive dust from excavation and grading activities, pollutant and particulate emissions from internal combustion engines of heavy construction and auxiliary equipment, pollutant emissions from coatings application, accidental spills of fuel, or accidents with hazardous, toxic, or ozone-depleting chemicals. The Air Force must obtain a "Authority to Construct" and a "Permit to Operate" if the source is a substantial emitter of ozone precursors (reactive organic chemicals) or small particles (below 10 microns). In the representative PSLV, there is little facility modification activity, hence the potential for construction related impacts is low.

#### Waste Water Discharge Permit

Water quality is of concern due to possible impacts from wastewater handling, sewage disposal, and accidental discharges of hazardous materials or hazardous wastes during construction

activities. The Federal Clean Water Act and amendments govern the release of waste water and stormwater runoff.

Generally, two plans, Soil Erosion and Sediment Control Plan and a Stormwater Pollution Prevention Plan are required for construction by the Regional Water Quality Control Board. A Hazardous Materials Contingency Plan must be prepared to comply with the Vandenberg AFB Spill Response Plan. Since the Base holds all permits for storage and treatment of hazardous waste, explicit compliance with the Vandenberg AFB Hazardous Waste Management Plan is required. A permit under the National Pollutant Discharge Elimination System will be required for any release of known or suspected industrial waste water.

Water discharge permits are issued by the California Regional Water Quality Control Board. The permits are for both sanitary discharge to the ground and process water discharge, which requires National Pollutant Discharge Elimination System (NPDES) permits as defined by the Federal Clean Water Act.

The US Army Corps of Engineers (ACOE) is concerned only if there is dredging or filling in navigable waters. The ACOE is also the primary Federal agency for wetlands delineation. Our project will not require dredge and fill permits.

#### Environmental Approval

The environmental assessment process will be complete before construction begins. The Vice Commander, 30th Space Wing (30 SW/CV) is the Chairman of the Base Environmental Protection Committee and the environmental approving authority on Vandenberg AFB for a FONSI or ROD. Regulators of air quality, water quality, cultural resources, waste management, and safety will provide separate letters of approval before construction.

Following construction, a final air quality Permit to Operate will be necessary to operate any air pollutant generators built or brought into the facility to process space hardware.

### 5.3.3 Ground Support Equipment

The PSLV operation is planning to avoid the use of powered Ground Support Equipment (GSE), which uses internal combustion engines. Support equipment will be designed for electrical power sources where practical. The electrical equipment will need to pass certain safety checks and reviews required by the 30th Space Wing Safety Office (30 SW/SE). If there is a use for air pollution emitting equipment such as a generator, forklift, or engine-driven hydraulic systems, an air quality operating permit may be required from the Santa Barbara APCD. The request for the permit would go through the 30 SW/ET. The 30 SW/ET maintains a log for "de minimis" permits which can be granted without coordination with Santa Barbara APCD.

## 5.4 Space Launch Vehicle Processing

The following sections discuss the environmental issues of the PSLV and how they fit into the required environmental approval processes. The activities discussed include:

- Launch Vehicle Processing
- Satellite Vehicle Processing
- Integrated Processing
- Maintenance Activities

### 5.4.1 Launch Vehicle Processing

Launch Vehicle preparation includes delivery and preparation of the Transfer Orbit Stage (TOS) Upper Stage Vehicle, the two stages of the core launch vehicle, and the four Castor IVA strap-ons to the launch vehicle. Each of these is delivered by truck, intact, and then by dolly to the Booster Processing Area (BPA) of the processing facility. Because of its complexity, there are numerous possibilities for accidental release, partial explosion, fire, etc. Good design, assembly, and handling procedures ensure that the probabilities of such events are very small. Nonetheless, the risks of toxic spills, fire, explosion, personnel injury, and death are environmental and safety

concerns/impacts that must be evaluated in several environmental and safety licensing procedures.

Both Castor 120<sup>TM</sup> stages contain 108,005 lbs of solid hydroxyl terminated polybutadiene (HTPB) propellant, which consist of solid ammonium perchlorate/aluminum powder. Each also contains a 3,000 psi Helium (HE) cold gas blowdown Thrust Vector Control (TVC) System. There are two 300 grain linear shaped DOD Class 1.1 explosive charges used as the destruct system. Additionally, there is also a small 14.25 grain PBXN-5 explosive used as the separation system for the interface section. The safety record of the Castor 120<sup>TM</sup> and its predecessor designs is a perfect twenty eight successful burns with no failures.

Each of the four Castor IVA Strap-On Solid Rocket Motors contains 22,270 lbs of solid HTPB propellant and solid ammonium perchlorate/aluminum. The safety record of the Castor IVA is also near perfect over ten years of use as a strap-on rocket motor.

The TOS Upper Stage includes the Orbus 21<sup>TM</sup> Equipment Section Boost Motor (ESBM). The Orbus 21<sup>TM</sup> contains 22,000 lbs. of HTPB, with solid ammonium perchlorate/aluminum powder oxidizer. There is also a hydrazine-fueled Equipment Section (ES) Attitude Control System (ACS), which must be loaded by hydrazine cart during booster preparation. A 200 grain linear shaped charge is used as a separation system for the upper stage.

The ACS is a series of small thrusters fueled with hydrazine (N<sub>2</sub>H<sub>4</sub>). The ACS can hold up to 780 pounds of hydrazine (a relatively small amount). The potential for a spill of hydrazine must be considered.

The explosive potential of the Castor 120<sup>TM</sup>, Castor IVA, and the TOS solid rocket motors is covered by the Explosive Safety Siting accomplished under the Vandenberg AFB Safety and Community Planning Process. The explosive siting is evaluated for the launch vehicle (since it is the largest potential explosive source) at the processing facility and also at the launch facility. The launch pads at the launch facility are designed to comply with solid propellant DOD explosive Class 1.3 rating (fire hazard) rather than a Class 1.1 rating (detonation hazard).

Some of the significant regulatory measures that reduce and control the risks of accidents involving these solid rocket motors include:

- Procedures and requirements of Vandenberg AFB Operation Plan 234-89.
- Hazardous Materials Contingency Plan (contractor-prepared).
- Vandenberg AFB Spill Response Plan.

#### 5.4.2 Satellite Vehicle Processing

The STAR 37S apogee kick motor and hydrazine fueled attitude adjust system are part of the payload. Payload sensors utilize small amounts of toxic metals such as Mercury (Hg), Indium (In), Antimony (Sb), and Tellurium (Te). These are potential health and safety impacts. There are risks of accidents during handling, with the attendant risk of releasing hazardous materials, and injury to personnel. Actual risks are estimated to be small, however, due to the large measures of control and precaution built into the procedures. The explosive potential of the solid motor is covered by the Explosive Safety Siting of the Castor 120<sup>TM</sup> accomplished under the Vandenberg AFB Safety and Community Planning Process.

Following the final testing and propellant loading and pressurization, the satellite vehicle is cleaned and encapsulated in the payload fairing. Some solvent hazardous wastes may result from the cleaning. The solvent wastes must be contained and dumped in accordance with Vandenberg AFB regulations.

Hydrazine propellant is loaded into the Hydrazine Attitude Adjust System (AAS) using a closed-loop system hydrazine loading cart. The closed-loop propellant loading system is used it accomplishes environmental objectives and avoids the requirement for an air quality permit. The 30 SW/ET can provide a de minimis exemption, if the release during servicing of the AAS calculated to be less than 0.1 lb/hour. The de minimis air quality permit process can save a significant amount of time and money for the commercial user.

Mitigation measures for an inadvertent propellant release include:

- Closed-loop loading system (de minimis approval, see Figure 3.3 of Section 3.1).
- Vapor capture at disconnect.
- Residuals mixed with water, temporarily stored in tank.
- Use of a Best Available Control Technology (BACT) vapor scrubber system.
- Disposal of wastewater as non-hazardous or hazardous waste.
- Use of Self-Contained Atmospheric Protective Ensemble (SCAPE) suits to provide personnel protection in event of release.

#### 5.4.3 Integrated Processing

##### Pre-Launch Processing

The launch vehicle, upper stage, and encapsulated satellite vehicle are trucked to the launch mount, where the launch vehicle and upper stages are stacked, and the satellite vehicle is mated. Transportation and handling of these explosives involves the risk of accidental toxic releases, fire and/or explosion.

Diesel generators are used to provide back up electrical power. Particulate and pollutant emissions from these generators are air quality concerns. To the extent of their annual usage, a Permit to Operate (PTO) is required. This approval for the PSLV operation has been received and the PTO previously issued due to user foresight in the early stages of the planning process.

##### Post-Launch

During ascent, the solid rocket motors produce toxic exhaust products: Hydrochloric Acid (HCl), Carbon Monoxide (CO), and Aluminum Oxide (Al<sub>2</sub>O<sub>3</sub>). Burning of the hypergolic fuels also produces Nitrogen (N<sub>2</sub>), Hydrogen (H<sub>2</sub>), ammonia (NH<sub>3</sub>), and toxic oxides of nitrogen (NO<sub>x</sub>): Nitric Oxide (NO), Nitrogen Dioxide (NO<sub>2</sub>), and Nitrous Oxide (N<sub>2</sub>O). Air Quality concerns

must be carefully evaluated. The impacts of launch noise and sonic booms to endangered species must be investigated and evaluated. The risk of various possible launch accidents must be estimated. Public health and safety impacts are also evaluated.

#### 5.4.4 Maintenance Activities

Some maintenance support activities at the launch mount are the source of environmental concerns/impacts:

- Particulate and pollutant emissions from automobiles used for transportation to the launch mount area.
- Emissions from painting and coating (corrosion control) activities.
- Cleaning solvents.

These activities and the chemicals and materials must be evaluated on a continual basis in the environmental process. Changes in procedures may also require an environmental analysis. Environmental impacts are monitored to ensure milestones are achieved, which allow continued operations. The environmental concerns continue as long as there is a potential risk to the environment from the operations or maintenance of facilities and vehicles.

### 5.5 Summary

The PSLV for this study has shown a possible path through the environmental process. Two of the EIAP routes were discussed: a CATEX appropriate for the processing facility, and an EA was used for the construction of the launch facility. The PSLV Project Manager showed how knowledge of the EIAP can save time and money by scheduling activities to occur in parallel. With a thorough understanding of the environmental assessment process and permit requirements, a commercial Project Manager will incorporate the environmental process into the program schedule and achieve a successful outcome.

PART III:  
STREAMLINING  
ENVIRONMENTAL  
PROCESSES

SECTION 6.0  
STREAMLINING ENVIRONMENTAL  
PROCESSES

## **PART III: STREAMLINING ENVIRONMENTAL PROCESSES**

### **6.0 STREAMLINING ENVIRONMENTAL PROCESSES**

#### **6.1 Motivation**

In the previous sections of this report, the environmental and permitting processes are described. A Pilot Space Launch Vehicle is used to provide an example of using the processes. This section evaluates the environmental and permitting processes and recommends changes for consideration to improve them for commercial space activity at Vandenberg AFB. In order to understand the need for streamlining of the processes, an understanding of the current and future launch activity at Vandenberg AFB is necessary.

Currently, there are approximately ten to twelve DOD launches from Vandenberg AFB each year. Commercial activity could increase the launch rate to as high as fifty-five launches in a single year by the year 2000. Additionally, as the market evolves and "low-cost access to space" becomes a reality, additional users are expected to further increase the demand for use of Vandenberg AFB processing and launch facilities.

The impact on the launch processing and support agencies at Vandenberg AFB will become strained beginning in 1996, and possibly earlier, since users will start launch preparations planning two to three years ahead of time. Each government support agency, including the environmental agencies, needs to improve their processes to efficiently handle the many new commercial space customers. If the methods remain the same for processing thirty launch vehicles per year as twelve per year, the probability of achieving success is very uncertain. Environmental and permitting agencies, in particular, have an opportunity to assist US commercial space efforts by streamlining the current processes.

Throughout the discussion in this section, there is no attempt to question Federal, State, or County laws, DOD or Air Force regulations, their policies, or to accuse any environmental

agency of performing unsatisfactorily. The goal of this study is to concentrate on identifying streamlining opportunities in the environmental and permitting processes. Process streamlining is necessary in order to achieve the same high-quality environmental responsibility shown in the past and to encourage commercial space activity at Vandenberg AFB.

## 6.2 Approach

The new users at Vandenberg AFB can realize efficiencies in starting up their environmental approval process with a thorough understanding of the entire process, ranging from types of approvals required, information and forms necessary, likely times for individual steps, and areas to avoid if possible. This study is an effort to provide insight into the environmental process at Vandenberg AFB and propose streamlining methods to improve the process for DOD and commercial space launch users.

The following outlines the basic approach undertaken in this study to determine streamlining measures for the environmental process:

1. The current process was documented as well as possible. This baseline documentation helped to identify inherent inefficiencies in existing methods.
2. Interviews and discussions with regulatory agencies were conducted to support or change the baseline documentation and identify suggested streamlining areas. These discussions also formed working relationships with the agencies charged with environmental assessment and regulatory responsibility.
3. The use of computers was investigated which could provide remote communications via electronic modems for air quality permitting and other purposes.

This section investigates streamlining areas of the environmental process identified in Section 2.0, Environmental Laws, Regulations, and Approval Authorities and Section 3.0, Environmental Process, Section 4.0, Pilot Space Launch Vehicle System Concepts, and Section 5.0, Pilot Space Launch Vehicle Environmental Process, provide a typical user processing scenario to address in the following discussions. Additionally, Section 7.0, Demonstration Projects, can provide possibilities for accomplishing some of the streamlining objectives.

### 6.3 Agency Interviews

During the course of this study, persons working at Vandenberg AFB and Santa Barbara County APCD offices were contacted for interviews and/or to evaluate this report. Additionally, outside environmental consultants were used to provide an independent perspective of the environmental process. These persons are acknowledged for their participation with this study in Section 1.8, References (Page 1-17), of this report.

- **Develop Handbook on Environmental Process**
- **Education and Training for Commercial Users**
- **User Understanding of Schedule Management**
- **Establish a Commercial Environmental Working Group (CEWG)**
- **Explore Possibilities of Using Computer Tools Once Processes Are Streamlined**

Figure 6.1 Streamlining Recommendations

WCSC would particularly like to thank the people of the 30th Space Wing Environmental Management Office, Vandenberg AFB, and the Santa Barbara Air Pollution Control District for their review of this document. Their comments and suggestions were very encouraging.

### 6.4 Recommendations for Streamlining

This study has determined there is a sincere desire on the part of environmental regulators to streamline environmental and permitting processes. Often times personnel involved in large, cumbersome processes are unfairly blamed for inefficiencies. In a process as large as the environmental process, there is not a single environmental agency which can effect efficient streamlining by itself. Therefore, streamlining measures must be a team effort between government environmental and permitting agencies and DOD and commercial space users.

The following five streamlining recommendations, summarized in Figure 6.1,

are provided as a result of the study investigation, personnel interviews, and past experience of Study Team Members:

1. An easy to understand informational document on the environmental and permitting processes should be redeveloped to provide a handbook for users.
2. Education and training is essential for everyone involved in the process. An environmental and permitting process document would serve to provide much of the necessary information, however, other sources of supporting this area should be explored.
3. Commercial users must be helped to understand that they need to create and manage their own environmental schedules. The schedule should provide for accomplishing as much of the environmental process in parallel as possible. A common misunderstanding is that the 30th Space Wing Plans and Programs Office (30 SW/XP) and the 30th Space Wing Environmental Management Office (30 SW/ET) accomplishes all the activity for the user. The user is responsible to ensure the appropriate activity is occurring at the correct time. The 30 SW/ET is primarily an advisor and an interface for the other agencies involved in the process .
4. Effective communication between people involved in the environmental process is essential to accomplishing long-term streamlining of the process. The establishment of a Commercial Environmental Working Group (CEWG), composed of government environmental regulators and commercial users, would allow continuous evolution of the process. The forum could provide a place for identifying important issues, reacting quickly to them, and act as an information exchange between regulators and users. Additionally, users would benefit from the experiences of other users (i.e., education and training). The CEWG would adopt its own charter, roles and responsibilities, administration procedures (i.e., minutes and action items), and determine the frequency for the meeting. Everyone would benefit from the interaction, and streamlining of the environmental process would easily occur.
5. The development of a computer communication system such as the Automated Data-Driven Environmental Approval Process Tool (ADEPT, described in Section 7.0) would complement the CEWG and give environmental regulators and users state-of-the-art technology to perform more effectively. Each of the processes should be streamlined before automation is implemented.

During a discussion of environmental issues with Roger J. Evans, CCSI, Mr Mackey J. Real, Jr., Chief, Environmental Management, 30th Space Wing Environmental Management Office at Vandenberg AFB responded that commercial users would find the environmental and permitting processes difficult and awkward until the processes become a part of the space program "culture" in the same way safety is a part of conducting processing and launch operations. He provided the following comments to WCSC upon a review of this report and WCSC's recommended streamlining actions discussed in this section:

*"The regulatory community and industry need to develop a common vocabulary, which will allow the exchange of ideas in a public forum, that reflects an understanding of each others goals and stops the paralyzing myopia which both sides suffer from now. From these exchanges, definitions of cost effectiveness and feasibility can be developed, but, not without paradigm shifts from both regulators and industry.*

*It is paramount that the proponents of the commercial space industry understand it's own impacts in the context of the local community's concerns. Exemptions from permits or reporting will be hard to come by without accurate quantification of impacts and sincere mitigation or avoidance of the impacts.*

*To truly insure the success of commercial space in Santa Barbara County from now and into the future, the proponents of commercial space must define their activities and processes well enough to have them included in the County's plans - not just Vandenberg AFB plans. The plans must include Santa Barbara's commitments to the commercial space launch industry and include accommodations for growth and expansion.*

*Our recommendation for streamlining the environmental process is that commercial space proponents hire qualified environmental consultants who are familiar with California regulations to perform environmental services from site selection, construction, design, and operation."*

The Pilot Space Launch Vehicle (PSLV) used in Section 4.0 and 5.0 portrayed a scenario which did not allow for lost or misplaced paperwork, workload delays, and schedule conflicts. These types of delays in the environmental process account for the majority of the areas which are candidates for streamlining. For example, the AF Form 813 for the launch facility developed for the PSLV was actually submitted six months earlier than shown. As a result of being accidentally "lost in the system," the document needed to be resubmitted to the 30th Space Wing Environmental Management Office. The commercial user, unaware of the non-activity on the initial submittal of the AF Form 813, was very frustrated when the realization of the lost document was discovered.

The example of the lost document shows the importance of the streamlining recommendations stated above. The user needs to be aware and continually track the project schedule and paperwork through the environmental regulatory system. The regulatory agencies also need to track paperwork in an efficient manner. Document control and tracking could be aided by the formation of a CEWG to report on the status of commercial users requests and environmental schedules.

## **6.5 Title V Clean Air Act Amendments**

Although this study did not focus on changing regulatory laws and regulations to streamline the environmental process, changes in this area may, of course, provide profound influences on the process. An example of improvements in the environmental regulations is shown in the 1990 amendments to Title V of the Clean Air Act (CAA). Title V of the CAA provides the County and Local environmental communities the opportunity to rethink the environmental system. Regulatory proposals are being provided which have environmental benefit while allowing increased operational flexibility and less burdensome administrative procedures.

While California already has an air quality permit program in place, it must also comply with Title V of the Clean Air Act (CAA) of 1990 which goes into effect in November 1995. Title V tries to address the concerns about the lack of flexibility in current air permitting regulations. Title V discusses contravention of permit conditions, alternative operational scenarios, permit shields, and minor permit modifications (90-day turnaround). The new law advocates use of de minimis limits and allows the creation of a list of insignificant activities.

**PART IV:  
DEMONSTRATION  
PROJECTS AND  
AGREEMENTS**

**SECTION 7.0  
DEMONSTRATION PROJECTS**

# **PART IV: DEMONSTRATION PROJECTS AND AGREEMENTS**

## **7.0 DEMONSTRATION PROJECTS**

### **7.1 Background**

Communications efficiency in environmental and permitting processes can be greatly improved through automated computer methods. Currently, a user at Vandenberg AFB must apply for an air quality permit first to the 30th Space Wing Environmental Management Office (30 SW/ET) at Vandenberg AFB. The permit application is forwarded by mail to the Santa Barbara County Air Pollution Control District (APCD) for initial screening for completeness, prior to commencing the 180 day permit processing period. If there are questions on the contents of the application, a letter is sent to the user through the mail describing the problem(s). This process could continue over a period of time and could also require a face-to-face meeting(s). If an electronic computer system was available, the mail delay could be replaced by immediate submittal of air quality applications to the APCD using a computer modem between the 30 SW/ET and the APCD. Questions on the application could also be quickly sent to a user computer terminal and a copy to 30 SW/ET. By using computer technology, a significant savings of time could be realized and permitting processes could become more efficient.

As described in the preceding sections of this report, the environmental and permitting processes for commercial launch operations can be expensive and time consuming. Commercial launch users may shy away from new ventures at Vandenberg AFB simply because they can not handle the work load and expense required to attain the needed environmental approvals for their projects. A software tool incorporating intelligent automation could allow commercial launch users access to data needed to process environmental and permitting approvals. Additionally, a software tool could give potential commercial launch users an integrated software package at their facility to develop support requirements for the approvals. With the appropriate computer hardware and software, a user could interface with the 30 SW/ET or the Santa Barbara County

APCD for necessary environmental and permit approvals to conduct operations with a realized cost savings and minimal impact to schedules.

Additionally, the automation of environmental and permitting processes would allow commercial launch users access to data needed to process environmental approvals. Streamlining the environmental assessment process can be accomplished by documenting key decision parameters made by the regulatory community and coding them into software. This would provide commercial launch users an integrated software package at their facility to develop support requirements for the approvals. The software could also include the pertinent regulations and specifications. A historical database could include previous approvals done for similar activities ensuring each user all prior pertinent information.

## **7.2 Demonstration Descriptions**

This study includes a review of the possibilities of using computer technology. Two demonstrations are accomplished to evaluate the potential of such a system. An air quality permitting process is chosen as the first demonstration example for an interactive data system called the Automated Data-Driven Environmental Approval Process Tool (ADEPT). The ADEPT system, developed by Dynamics Research Corporation (DRC), uses standard off-the-shelf Windows-driven hypertext software. The Santa Barbara APCD permitting process is exercised using ADEPT. The candidate for demonstrating ADEPT is a diesel engine driving a generator as auxiliary power source for a payload processing facility. Use of a diesel driven auxiliary power unit as test case for this demonstration is excellent since many programs require such auxiliary power during periods of critical testing. All appropriate forms and data are entered into an ADEPT database via a terminal located in the WCSC office. Another ADEPT system will be used by the Santa Barbara County APCD to retrieve data from the database and generate appropriate comments, questions and approvals. These approvals will be transmitted to the WCSC computer. The approval process will be effectively "paperless."

The second demonstration involves possible application of ADEPT to the Environmental Impact Analysis Process (EIAP). A menu driven/modular computer process was developed to facilitate automated analysis to be performed along with a framework for expedited decision making. Jacobs Services Corporation, the Vandenberg AFB environmental advisor, has worked closely with DRC to integrate the ADEPT system with several existing data sources as a first demonstration of this capability.

### 7.3 Description of Automated Data-Driven Environmental-Approval Tool

ADEPT is a computer software tool that takes the requirements from the various approval offices and compiles them in one place. The tool provides a single point of contact and coordination for new commercial launch users. It establishes a baseline that has prior approval of all reviewers, so consistency checks are not necessary. A new user can come to one office and get a road map of all the approvals and coordination activity necessary for any operation. This allows a potential user to review environmental requirements as they are developing their program. They can see what items create problems and avoid them if possible. If it is not possible to avoid the problem areas, the program can start working solutions for them early in the program instead of waiting for a failed approval.

With ADEPT, an integrated computer system can be created to maximize efficiency between the user, the 30 SW/ET, and the Santa Barbara County APCD. The resulting system, shown in Figure 7.1, would create a "paperless" environmental process. It would allow users to fill out forms, gather information, review regulations, and seek approvals from remote locations. This integrated communications system would allow the 30 SW/ET and the Santa Barbara County APCD to quickly and efficiently process the permitting requests for DoD and commercial space launch users at Vandenberg AFB. The system can be expanded to include other users and services. The opportunity to use current computer and software technology to improve the environmental process provides the environmental agencies and users a low-cost, more efficient alternative to the current way of doing business.

#### 7.3.1 Software Architecture

ADEPT uses three distinct modules integrated together on a portable computer. ADEPT can grow to include any combination of modules. The modular concept allows for easy expansion of the software. New modules can be added on as they become available. The current modules allow for integrated document review, controlled data entry and preservation, and Computer-Aided Design drawing retrieval. The three current modules consist of the Integrated Document Review Module, the Controlled Data Entry and Preservation Module, and the Computer-Aided Design Graphics Module. The ADEPT software architecture is shown in Figure 7.2. Each of the three modules are described in the following paragraphs.

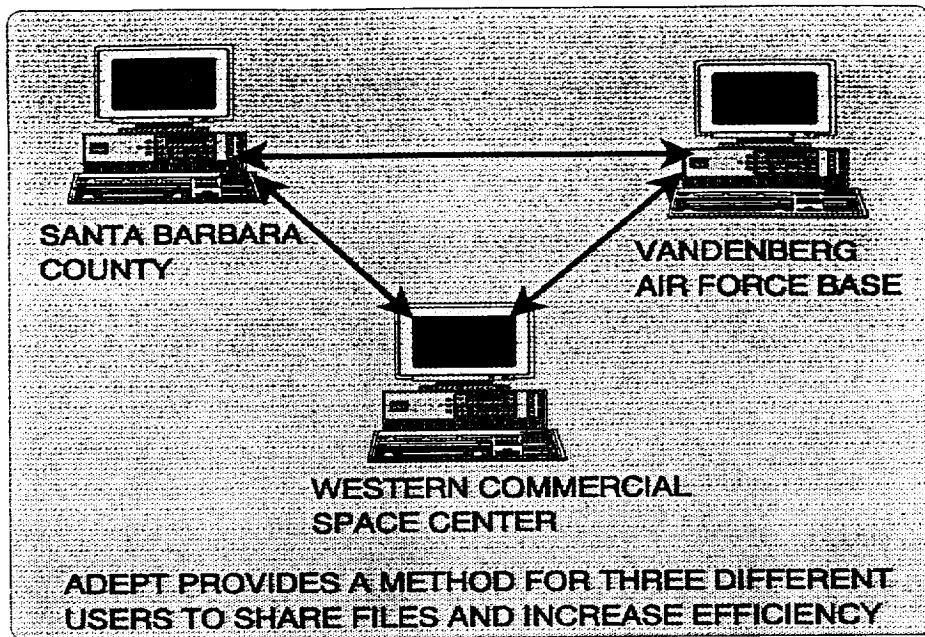


Figure 7.1 Operational Concept of "Paperless" System

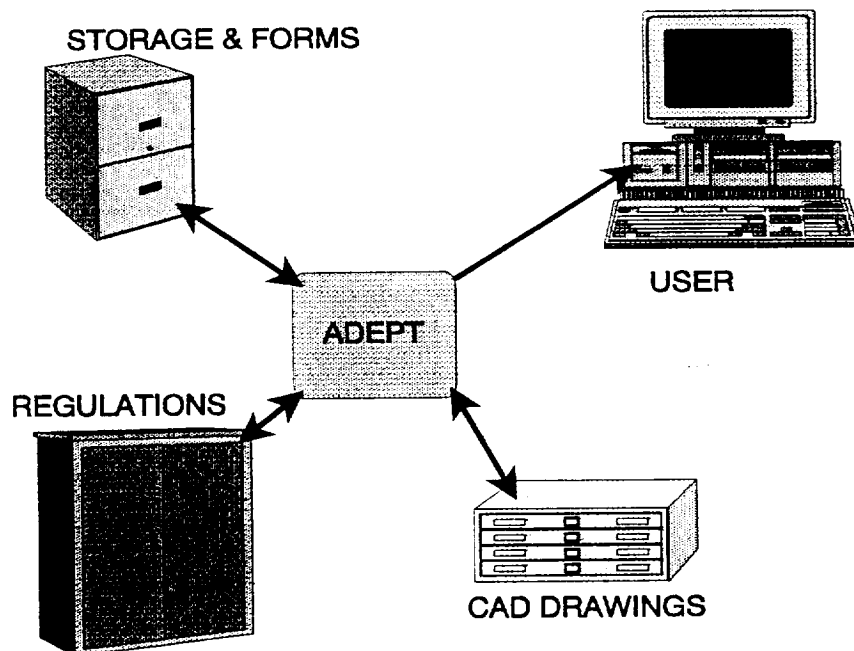


Figure 7.2 ADEPT Software Architecture

### Integrated Document Review Module

This module allows users to read detailed specifications that apply to the application. In ADEPT, this module allows the user to read all the applicable specifications. Additionally, it had extra notes added for clarification. This is a "read only" module. It allows the developer to link as many of the documents together as needed.

### Controlled Data Entry and Preservation Module

This module prompts the user for specific data. This is especially useful for filling out forms. Additionally, this module prevents extraneous data. For example, if a user has a multi-use form, the form could be used for a change of address, change of name, change of phone number, or a new application. Depending on what the user selects for the initial need, the screen changes to reflect the necessary data. Any extra blanks disappear from the user. This module places all the data into a relational database. This database will store the data for historical reference. With the proper prompting, the system will show the user how previous users completed similar forms.

### Computer-Aided Design Graphics Module

This module allows the user to retrieve information from CAD drawings and red-line them without being able to edit the drawings. In ADEPT, the customer tracks locations of equipment that need environmental certification. It can also identify locations of facilities, power supplies, and water lines. Being able to access this data without having an expensive and memory-filling CAD program is very helpful.

## 7.2.2 Features of ADEPT

### Immediate Updating

Many organizations have a variety of databases and files that contain important information. They need access to these to perform their functions. The easier they can access their files, the more proficient they are. Additionally, rules and regulations are constantly changing. It is almost impossible for a novice user to keep track of all the changes.

ADEPT offers the user a method of keeping the up with the most current data. A variety of databases and files are integrated into one user-friendly PC-based system. The user can access any data that is available. The system can connect through a network or modem for external files. There is minimal delay between the time the data is available to the time it can be used. Thus the tool provides a means for a more effective and more productive work force. Each organization is responsible for updating their databases. For example, if Santa Barbara County updates a form, as soon as they put it in the database and identify all the links, the system appraises the users of the change. The system will automatically notify any user that is processing that current form. This will keep the user using the most current forms. They will not have to wait for the approval cycle to learn that a form had changed requiring new information.

#### Protected Data

Data entered by the user is stored in a database at the respective locations. This data can not be changed by anyone except that user. If necessary, the previous data can be saved even when a user changes it. This allows for a historical record. Additionally, a new user can see the process a previous user went through. New users can see what data previous users supplied. This will ease the process and eliminate a lot of the unknown within the approval process.

#### 7.3.3 Future Expansion Possibilities

Since ADEPT is modular, it can expand to fit a variety of needs. Currently a simple expansion includes the incorporation of a "Front End" to the tool. This "Front End" would request certain information from the user via a questionnaire. This user interface process is shown graphically in Figure 7.3. The Front End would place the program information into a database that would direct the user through further action. It would also specifically identify the necessary actions by a user. For example, the Santa Barbara Air Pollution Control District has several forms. Depending on the information the user places in the Front End, ADEPT will select the forms the user needs to complete. This eliminates the need to manually go through all the forms and select the proper ones. Based on rules pre-established by Santa Barbara County APCD, ADEPT will select the forms for the user.

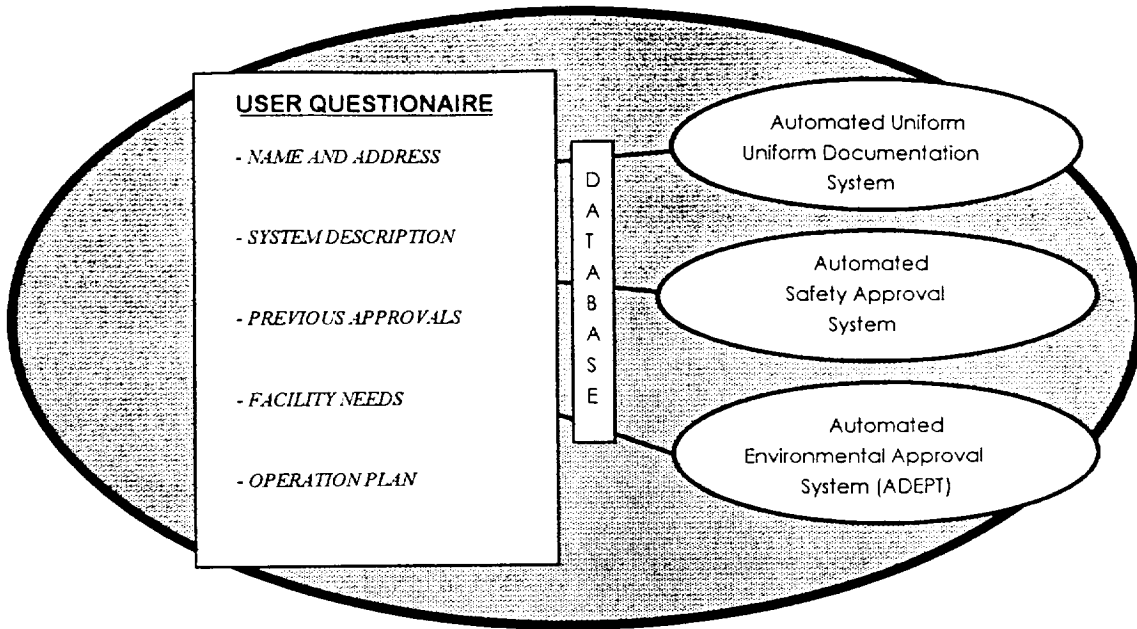


Figure 7.3 User Interface With ADEPT

The Front End system links the user information to the various automated approval systems via a common database. This assures all information is consistent, reliable, and historically traceable. The Front End would be modular to allow for easy expansion. For instance, if an automated version of the Western Range's Universal Documentation System (UDS) is available, the "front end" software would link ADEPT to the automated UDS through the database. Through this link, all information is consistent throughout the approvals. The program name and characteristics would be consistent throughout. It would be a simple step to link certain characteristics to certain forms. For example, if the design of the propellant system changed, this system would identify which forms need adjustment, such as UDS or APCD forms. Similarly, an automated Safety approval system could be also be linked to the system. This modular approach allows for improvement of each of the modules without effecting the remaining ones.

The ADEPT software program is the "front end" system which could be used to accomplish a variety of tasks. As shown in Figure 7.4, the software would interface with different software modules to include a "paperless" permitting process and specific databases. These two uses of ADEPT are discussed in the following paragraphs.

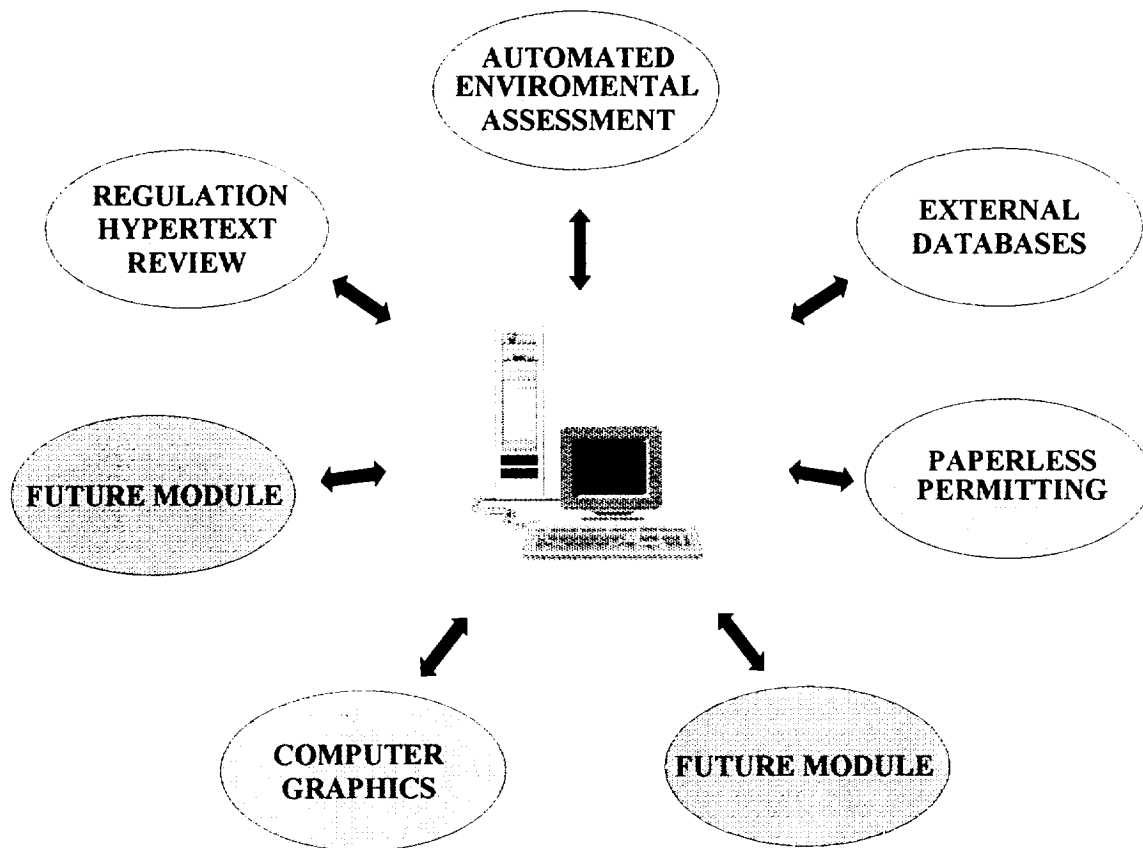


Figure 7.4 Possible Interfaces with ADEPT "Front End" Software

#### 7.4 Paperless Air Pollution Permitting Demonstration

The ADEPT software was used to demonstrate the concept of a "paperless" air pollution permitting capability. The demonstration involved 30 SW/ET and Santa Barbara APCD mock computer terminals of an envisioned system which would also include the user, as shown in Figure 7.5. The demonstration showed how an air pollution permit could be requested electronically by the 30 SW/ET to the Santa Barbara APCD, evaluated by the APCD, then electronically approved by the APCD.

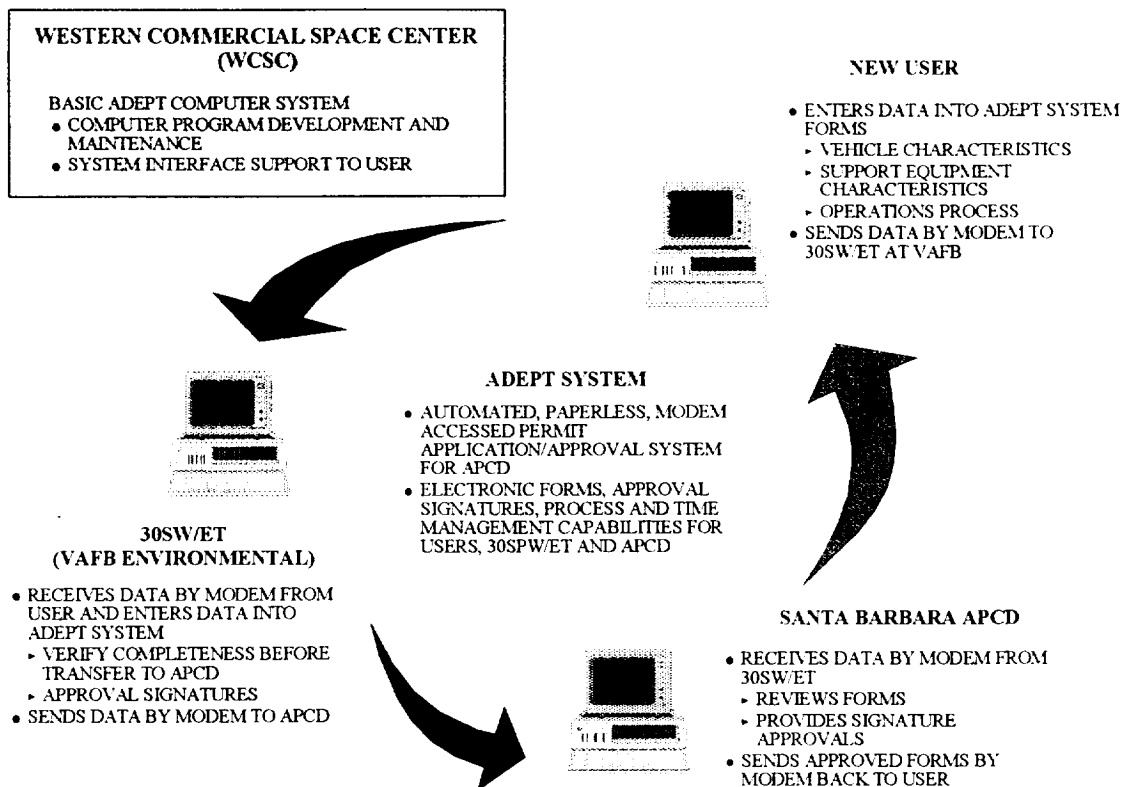


Figure 7.5 Demonstration of "Paperless" Air Pollution Permitting Process

## 7.5 Menu Driven/Modular EIAP Demonstration

The second demonstration project of this study addressed the concept of developing an environmental report or document, such as an AF Form 813, Environmental Assessment (EA), or Environmental Impact Statement (EIS) report using a computer database. An EA and EIS are large reports, which describe the project, alternate considerations, environmental aspects considered and mitigations, vehicle descriptions and environmental hazards, etc. The EA is composed of less than a hundred pages, while the EIS may be hundreds of pages in length. The remaining discussion focuses on the EIS since it is the more difficult document to write.

Many of the sections of an EIS are programmatic by necessity and reporting requirements. Therefore, the possibility of developing a faster approach to writing an EIS is considered as a prudent, streamlining prospect. The initial concept for quickly developing an EIS was to design a "programmatic" EIS database using "key words" to automatically construct the EIS document. This approach was found to be extremely labor intensive and would result in more expenditure of time and financial resources than would be saved from the final result.

The final concept is a modular/menu-driven database which would have a number of "programmatic" paragraphs in the database. The paragraphs would be developed from former documents and divided into blocks depending on the area of Vandenberg AFB the document covered.. The database would be broken down into specific documents (AF Form 813, EA, or EIS) which would be selected through a menu. Additional choices would be available in subsequent levels, as shown in Figure 7.6. The database would work with the ADEPT software program described in Section 7.2.

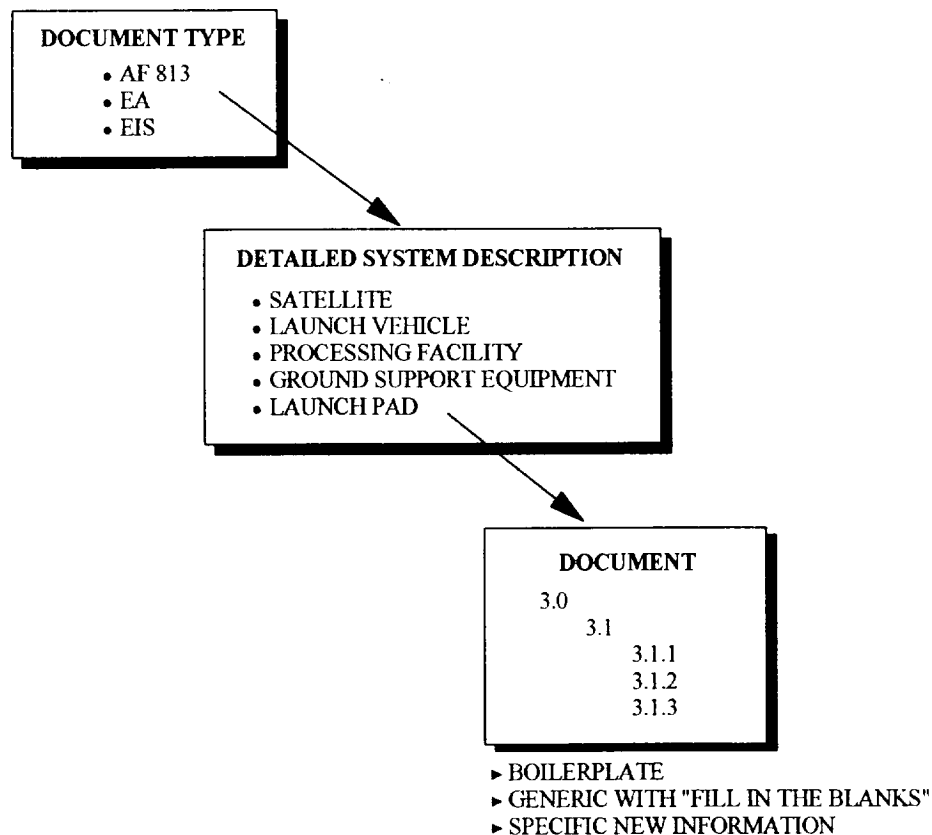


Figure 7.6 Concept for Using Automated Environmental Assessment Modules to Develop Programmatic Environmental Documents and Reports

As the user works through the menu selections, the appropriate paragraphs would be added to the "new" document. Following completion of the menu selections, the document would be available to the user on a computer disc to complete further editing and insertion of project-peculiar information. The concept is shown to be a viable approach to achieving the goal of more quickly being able to write an environmental document.

Although the modular/menu-driven method requires the development of the "programmatic" paragraphs from specific areas on Vandenberg AFB, processing and launch facilities, launch vehicles, satellite vehicles, etc., the effort is not as labor-intensive and time-consuming as previous proposals. The concept involves information which already exists in other documents and only requires editing and inputting into an easily constructed database. The modular/menu-driven database appears to be a feasible alternative for streamlining the EIS process.

## **7.6 Demonstration Software**

A demonstration software package is included with the final report to CSTAR only. The demonstration software is available on 3.5 inch floppy disk in Disk Operating System format by contacting:

Western Commercial Space Center, Inc.

3865-AA Constellation Rd.

Lompoc, CA 93436

(805) 733-4700

A nominal handling charge will be imposed for disk copying and shipping.

SECTION 8.0  
ENVIRONMENTAL PROCESS  
AGREEMENTS

## **8.0 ENVIRONMENTAL PROCESS AGREEMENTS**

### **8.1 Requirements for Commercial Space Operations**

Commercial space activity presently occurring at Vandenberg AFB is expected to grow over the coming years. Current environmental and permitting processes are designed to meet a significantly lower launch rate with minimal customers.

Since the goal of commercial space users at Vandenberg AFB is to recognize a financial profit for their efforts, timely processing of environmental and permitting paperwork, and obtaining approvals is of great importance in supporting US commercial space efforts. Therefore, streamlined environmental and permitting processes, as stated in Section 6.0, are necessary to support increased commercial space launches.

Agreements between government regulatory agencies are necessary to achieve any pronounced streamlining measures. Without these agreements, streamlining of environmental and permitting processes will not be accomplished for commercial space users at Vandenberg AFB.

### **8.2 Plans for Future Agreements**

WCSC coordinated with the 30th Space Wing Environmental Management Office (30 SW/ET) and the Santa Barbara County Air Pollution Control District (APCD) during the course of this study. These agencies were present at two demonstrations of the Automated Data-Driven Environmental-Approval Process Tool (ADEPT) computer software program. ADEPT was developed as a part of this study to evaluate the concept of a "paperless" permitting capability and developing an Environmental Impact Statement using a modular/menu-driven database. The 30 SW/ET and the Santa Barbara APCD were provided draft copies of this report to review.

Although formal agreements were not accomplished, 30 SW/ET and Santa Barbara APCD displayed an interest in continuing to work towards achieving streamlined agreements. (A letter of support from the Santa Barbara APCD is provided in Exhibit C.) WCSC will continue to work with environmental regulatory and permitting agencies to achieve streamlining agreements following the completion of this study.

PART V:  
CONCLUSIONS AND  
RECOMMENDATIONS

SECTION 9.0  
CONCLUSIONS AND  
RECOMMENDATIONS

# **PART V:**

## **CONCLUSIONS AND RECOMMENDATIONS**

### **9.0 CONCLUSIONS AND RECOMMENDATIONS**

#### **9.1 Conclusions**

The efforts of this study produced the essential elements of a dynamic, working model of the environmental and permitting processes at Vandenberg AFB. The enabling laws, regulations, and policies were identified to provide understanding of the driving factors in the environmental arena. The environmental and permitting agency contacts, estimated times, uncertainties, forms, and other documents required for each step were documented. Steps and factors in these processes that are potential stumbling blocks, critical path items, or of high uncertainty, were also identified. A Pilot program was evaluated to demonstrate the environmental process in a realistic setting using a launch vehicle planning to launch from Vandenberg AFB in the near future carrying a typical payload familiar to the Base. Many improvement and streamlining methods have been defined, evaluated, and partially developed, for specific applications. Demonstration of two automated computer streamlining methods were also demonstrated - Air Pollution Control District (APCD) permit application and approval, and a modular/menu-driven database for developing an Environmental Impact Statement (EIS) at Vandenberg AFB. Lastly, the study proposed and worked to coordinate agreements between environmental agencies and users to continue to work towards a more cohesive, user-friendly environmental process.

This environmental study effort produced a comprehensive plan for making environmental approval processes much more efficient, less costly, and time consuming for both future DOD and commercial launch providers at Vandenberg AFB. Demonstrations and limited agency agreements attest to the efficiencies of the approach and integrity of the planning effort.

As discussed in Section 7.0, the automated software tools offered by Automated Data-Driven Environmental-Approval Processing Tool (ADEPT) for both permitting processes and the

environmental impact assessment process provide a platform of opportunity for making use of current technology to help streamline the environmental process..

Streamlining innovations must include formal agreements among the environmental regulating agencies and the WCSC (representing the commercial user). Such agreements will evolve through close communication and coordination of the principal parties who recognize the necessity to streamline the environmental and permitting processes.

Environmental laws and regulations continue to rapidly develop at Federal, State and local levels. Inconsistencies and redundancies in these laws and regulations can provide real problems for environmental regulators and prospective commercial users at Vandenberg AFB. During this limited study, we have seen one good example developing as a result of new rules implementing the Clean Air Act (CAA) of 1990. While California already has a permit program in place, it must also comply with Title V of the CAA which goes into effect in November 1995. Title V supports California permit streamlining and its provisions address concerns about the lack of operational flexibility in current air permitting regulations. Title V provides an opportunity for very beneficial change to the new source review process. Title V also provides the County and Local environmental communities an opportunity to rethink the environmental system.

## **9.2 Recommendations**

This study evaluated the environmental process for conducting space launch activities on Vandenberg AFB. WCSC recommends that environmental regulatory agencies consider the streamlining and improvements identified in this report. The traditional methods of "doing business" will encumber the commercial space effort at Vandenberg AFB if a sincere effort is not undertaken to evolve the environmental and permitting into the next generation systems.

WCSC, its subcontractors, and other persons involved in this study do not advocate elimination of environmental laws and regulations to accomplish streamlining of the processes. These laws and regulations have a good purpose. It is the processes, through which environmental and permitting approvals are accomplished, that are the targets for streamlining.

WCSC recommends the continued development of computer management and communications tools to assist in the streamlining of the environmental processes. There are possibilities of networking systems which were not explored during the course of this study. In addition to the

air quality permitting process, time management, environmental forms processing, decision-making, and an environmental library of information could be made available to environmental regulators and commercial users over such a network. With a computer network, inter- and intra-communication and coordination between environmental regulators and commercial users could be efficiently accomplished.

Additionally, WCSC recommends the communication avenues remain open between environmental and air quality permit regulators. WCSC desires to formalize written agreements to streamline processes. Any environmental and permitting agreements will necessarily include the 30th Space Wing Environmental Management Office, Vandenberg AFB, and the Santa Barbara APCD.

## EXHIBIT A

# ENVIRONMENTAL FORMS

- A.1 Air Force Form 813 (Request for Environmental Impact Analysis)
- A.2 Air Force Form 943 (Explosives Waiver/Exemption/Site Plan)
- A.3 DD1391 (Military Construction Project Data)
- A.4 Air Force Form 103 (Base Civil Engineering Work Clearance Request)

<b>REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS</b>			Report Control Symbol RCS:			
INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).						
<b>SECTION I - PROPONENT INFORMATION</b>						
1. TO (Environmental Planning Function)		2. FROM (Proponent organization and functional address symbol)			2a. TELEPHONE NO.	
3. TITLE OF PROPOSED ACTION						
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)						
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.)						
6. PROPONENT APPROVAL (Name and Grade)		6a. SIGNATURE			6b. DATE	
<b>SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY.</b> (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)					+	0
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)						
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)						
9. WATER RESOURCES (Quality, quantity, source, etc.)						
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.)						
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)						
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.)						
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)						
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)						
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)						
16. OTHER (Potential impacts not addressed above.)						
<b>SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION</b>						
17. <input type="checkbox"/>		PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR				
<input type="checkbox"/>		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.				
18. REMARKS						
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)		19a. SIGNATURE			19b. DATE	



## SECTION III - MISSION DATA

1. IMPACT ON MISSION IF MISHAP OCCURS OR SITE PLAN IS NOT APPROVED

2. COMPENSATORY ACTIONS TAKEN (Unusual controls, precautions, etc.) AND PROGRAMMED CONSTRUCTION/ACTIONS TAKEN TO CORRECT VIOLATIONS. RECOMMENDED ACTION FOR HIGHER HEADQUARTERS

3. JUSTIFICATION

## SECTION IV - CERTIFICATION

## COMMANDER APPROVAL

TENANT UNIT (Where Applicable)

☐ CONCUR ☐ NON-CONCUR

PRINTED OR TYPED NAME

SIGNATURE

WING/BASE

☐ CONCUR ☐ NON-CONCUR

PRINTED OR TYPED NAME

SIGNATURE

INTERMEDIATE COMMAND/STATE ADJUTANT GENERAL (ANG only)

☐ CONCUR ☐ NON-CONCUR

PRINTED OR TYPED NAME

SIGNATURE

MAJOR COMMAND

☐ CONCUR ☐ NON-CONCUR

PRINTED OR TYPED NAME

SIGNATURE

AFISC

☐ CONCUR ☐ NON-CONCUR

PRINTED OR TYPED NAME

SIGNATURE

COMMENTS

1. COMPONENT	<b>FY 19 __ MILITARY CONSTRUCTION PROJECT DATA</b>			2. DATE
3. INSTALLATION AND LOCATION			4. PROJECT TITLE	
5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST (\$000)	
<b>9. COST ESTIMATES</b>				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
10. DESCRIPTION OF PROPOSED CONSTRUCTION				

BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST					DATE PREPARED	
1. CLEARANCE IS REQUESTED TO PROCEED WITH WORK AT _____ ON WORK ORDER/JOB ORDER NO. _____, CONTRACT NO. _____, INVOLVING EXCAVATION OR UTILITY DISTURBANCE PER ATTACHED SKETCH. THE AREA INVOLVED <input type="checkbox"/> HAS <input type="checkbox"/> HAS NOT BEEN STAKED OR CLEARLY MARKED.						
2. TYPE OF FACILITY/WORK INVOLVED						
A. PAVEMENTS	B. DRAINAGE SYSTEMS	C. RAILROAD TRACKS	D. FIRE DETECTION AND PROTECTION SYSTEMS	E. UTILITY <input type="checkbox"/> OVERHEAD <input type="checkbox"/> UNDERGROUND		
F. COMM. <input type="checkbox"/> OVERHEAD <input type="checkbox"/> UNDERGROUND	G. AIRCRAFT OR VEHICULAR TRAFFIC FLOW	H. SECURITY	I. OTHER (Specify)			
3. INSTRUCTIONS. The BCE work clearance request is used for any work (contract or in house) that may disrupt aircraft or vehicular traffic flow, base utility services, protection provided by fire and intrusion alarm system, or routine activities of the installation. This form is used to coordinate the required work with key base activities and keep customer inconvenience to a minimum. It is also used to identify potentially hazardous work conditions in an attempt to prevent accidents. The work clearance request is processed just prior to the start of work. If delays are encountered and the conditions at the job site change (or may have changed) this work clearance request must be reprocessed.						
4. DATE CLEARANCE REQUIRED			5. DATE CLEARANCE TERMINATED			
6. REQUESTING OFFICIAL (Signature)		7. PHONE NO.		8. ORGANIZATION		
CLEARANCE REVIEW						
ORGANIZATION		REMARKS		REVIEWERS NAME & INITIALS		
9. BASE CIVIL ENGINEERING	A. ELECTRICAL DISTRIBUTION					
	B. STEAM DISTRIBUTION					
	C. WATER DISTRIBUTION					
	D. POL DISTRIBUTION					
	E. SEWER LINES					
	F. DRAINAGE SYSTEMS					
	G. PAVEMENTS, GROUNDS, RAILROADS					
	H. FIRE DEPARTMENT					
	I. ENGINEERING & ENVIRONMENTAL PLANNING					
	J. OTHER					
10. SECURITY POLICE						
11. SAFETY						
12. COMMUNICATIONS						
13. BASE OPERATIONS						
14. COMMERCIAL UTILITY COMPANY (Telephone, Gas, Electrical, etc.)						
15. OTHER (Specify)						

16. REMARKS *(This section must describe specific precautionary measures to be taken before and during work accomplishment. Specific comments concerning the approved method of excavation, hand or powered equipment should be included.)*

REQUESTED CLEARANCE

☐ APPROVED

☐ DISAPPROVED

DATE

SIGNATURE OF APPROVING OFFICER *(Chief of Operations or Chief of Engineering and Environmental Planning)*

# EXHIBIT B

## AIR POLLUTION CONTROL DISTRICT INFORMATION

- B.1 Applicant letter
- B.2 Permit Application (with instructions)
- B.3 APCD Rules and Regulations List/Order Form



Santa Barbara County  
Air Pollution Control District

Dear Applicant:

Enclosed is a copy of the Santa Barbara County Air Pollution Control District's (APCD) Permit Application Form (APCD-01). This form is to be used to apply for an APCD permit.

- ▶ An Authority to Construct (ATC) permit must be obtained before any construction or installation activities commence.
- ▶ After construction or installation has been completed, a Permit to Operate (PTO) permit application should be submitted. You must have an approved PTO before equipment operation begins.

*\*\* Please note: There is a SEPARATE filing fee for both the ATC and PTO which must accompany each application package. The filing fee for your facility is listed in the attached Schedule F from APCD Rule 210.*

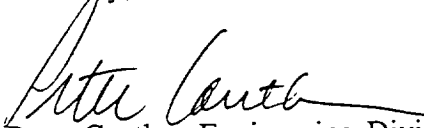
Your facility may also be required to complete a supplemental equipment/process form (see enclosed Application Form List). If your type of facility or equipment is listed, please contact the Engineering Clerk who will provide you with the necessary forms needed for your type of operation. Only these forms or photocopies are acceptable, not retyped versions. Please attach these supplemental forms to the ATC application package, and submit to the APCD at the letterhead address below.

Within 30 days after the receipt of your application package, an APCD engineer will notify you in writing as to whether all the necessary information has been provided. If additional information is required, your application will be deemed incomplete and we will advise you of the information deficiencies. After we receive this and determine your application is complete, it will be processed in a timely manner.

I urge you to contact us if you have any questions regarding the preparation of your application and/or the rules and regulations that apply to your facility. A copy of the APCD Rules and Regulations can be purchased prior to preparing your application. An order form for the Rules is enclosed.

Please call us at (805) 961-8800 if we can assist you in permitting efforts or answer any other questions regarding the APCD's operations.

Sincerely,

  
Peter Cantle - Engineering Division

Enc: Form APCD-01, Permit Application  
Application Form List  
Schedule F from Rule 210 (Fee Information)  
Order Form for Rules  
Information Pamphlet - Air Pollution Control Permits



Santa Barbara County  
Air Pollution Control District

For APCD Use Only  
Application No.

Project Name

PERMIT APPLICATION

1. APPLICATION TYPE (check the appropriate box):

- ☐ Authority to Construct (ATC)  
☐ Permit to Operate (PTO)  
☐ ATC Modification  
☐ PTO Modification  
☐ Change in Location

- ☐ Transfer of Ownership  
Old Business Name: \_\_\_\_\_  
New Business Name: \_\_\_\_\_  
☐ Decrease in Production Rate or Throughput  
☐ Other (Specify) \_\_\_\_\_

Previous ATC/PTO Number (if known) \_\_\_\_\_

Please reference the previous or related ATC or PTO number (if applicable) for all types of applications. If you do not know the number, please contact the District's Engineering administrative support staff at (805) 961-8800. The completed application should be mailed to the above addressed letterhead.

2. FILING FEE:

Except as described below, a separate application filing fee is required for each application and must be included with each application. This filing fee will not be refunded or applied to any subsequent application. Please refer to Rule 210 Schedule F, Item 1 for the correct amount or contact the District's Engineering administrative support staff.

The following applications do not require a filing fee:

- A. A change in business name only (transferring a permit from one permit holder to another requires a filing fee);  
B. A change of location of permitted equipment within existing boundaries of a facility (if the new site is outside the existing boundaries a filing fee is required); and  
C. Administrative changes (fees are assessed as specified in Rule 210 Schedule F, Item 6).

Applications for a decrease in permitted production rates or throughput may not require a filing fee (see Rule 210 I.E.3).

**FOR APCD USE ONLY**

Filing Fee \_\_\_\_\_

Date Stamp \_\_\_\_\_

ENGR\FORMS\APCD-01\MARCH 1992

1

26 Castilian Drive B-23, Goleta, CA 93117 Fax: 805-961-8801 Phone: 805-961-8800  
James M. Ryerson, Air Pollution Control Officer William A. Master, Assistant Director

*Our Vision: Clean Air*

B.2

3. IS YOUR PROJECT/EQUIPMENT LOCATED OR PROPOSED TO BE LOCATED WITHIN 1,000 FEET FROM THE OUTER BOUNDARY OF A SCHOOL? Yes [ ] No [ ]

If yes, provide name of school: \_\_\_\_\_

Address of school: \_\_\_\_\_

City: \_\_\_\_\_ Zip Code: \_\_\_\_\_

4. OPERATION AND OWNERSHIP:

Please specify the name and address of the person, partnership, company, corporation or agency to be named on the permit as the equipment owner and operator:

A. (Equipment Owner)

B. (Equipment Operator)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_

City: \_\_\_\_\_

State/Zip: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_ ( ) \_\_\_\_\_

Doing Business As: \_\_\_\_\_

5. CORRESPONDENCE NAME AND ADDRESS:

Same as 4A \_\_\_\_; 4B \_\_\_\_ or \_\_\_\_

Company: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Business Phone: ( ) \_\_\_\_\_

6. BILLING NAME AND ADDRESS:

Same as 4A \_\_\_\_; 4B \_\_\_\_; 5 \_\_\_\_ or \_\_\_\_

Company: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Business Phone: ( ) \_\_\_\_\_

7. **EQUIPMENT LOCATION (Address):** Specify the street address of the proposed or actual equipment location. If the location does not have a designated address, please specify the location by township, range, and section. If equipment is intended to be used at various locations, state such.

\_\_\_\_\_  
\_\_\_\_\_  
City: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Work Site Phone: ( ) \_\_\_\_\_  
[ ] Incorporated (within city limits) [ ] unincorporated (outside city limits)

8. **GENERAL NATURE OF BUSINESS OR AGENCY:** \_\_\_\_\_  
\_\_\_\_\_

9. **PROJECT DESCRIPTION** (Describe the equipment to be constructed, modified and/or operated or the desired change in the existing permit. Attach a separate page if needed):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. **DO YOU REQUIRE OR ALREADY HAVE PERMITS FROM ANY OTHER AGENCY FOR THE PROJECT DESCRIBED IN THIS APPLICATION?**

yes [ ] no [ ]

If **yes**, list those agencies or departments (e.g., City of Santa Maria Building Department, County of Santa Barbara Resource Management Department):

\_\_\_\_\_  
\_\_\_\_\_

The **lead agency** is the public agency that has the principal responsibility for approving a project. The lead agency is responsible for determining whether the project will have a significant effect on the environment and determines what environmental review and environmental document will be necessary. The lead agency will normally be a city or the county, rather than the Air Pollution Control District.

Which agency is the **lead agency**? \_\_\_\_\_

What is the lead agency project (or case) number(s)? \_\_\_\_\_

11. **INCLUDE A COPY OF THE LEAD AGENCY PERMIT OR NOTICE OF DETERMINATION BY THE LEAD AGENCY WITH THIS APPLICATION.**

12. PROJECT STATUS:

- A. Date construction/modification is scheduled to commence: \_\_\_\_\_
- B. Date construction/modification is scheduled to be completed: \_\_\_\_\_
- C. Scheduled equipment/post-modification startup date: \_\_\_\_\_
- D. If equipment construction/modification occurred before receiving permit approval, specify the date the construction/modification commenced: \_\_\_\_\_
- E. If equipment operation or post-modification operation occurred before receiving permit approval, specify the date operations commenced: \_\_\_\_\_
- F. If this application is for change of ownership/operator, indicate the date of the change of ownership/operator: \_\_\_\_\_

NOTICE of CERTIFICATION

I, \_\_\_\_\_, am employed by or represent  
(Type or Print Name)

\_\_\_\_\_  
(Type or Print Name of Business, Corporation, Co. Individual or Agency)

(hereinafter referred to as the applicant) and hereby certify that all major stationary sources in the state and all stationary sources in the air basin which are owned or operated by the applicant, or by an entity controlling, controlled by, or under common control with the applicant, are in compliance, or are on approved schedule for compliance with all applicable emission limitations and standards under the Clean Air Act (42 USC 7401 et seq.) and all applicable emission limitations and standards which are part of the State Implementation Plan approved by the Environmental Protection Agency.

I certify that the equipment listed herein complies or can be expected to comply with said rules and regulations when operated in the manner and under the circumstances proposed. If the project fees are required to be funded by the cost reimbursement basis, as the responsible person or party, I agree that I will pay the Santa Barbara County Air Pollution Control District the actual recorded cost, plus administrative cost, incurred by the District in the processing of the application within 30 days of the billing date. If I withdraw my application, I further understand that I shall inform the District in writing and I will be charged for all costs incurred through closure of the District files on the project.

COMPLETED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_  
(Please Print)

DATE: \_\_\_\_\_ PHONE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

## SCHEDULE F

### Item #

1. Authority to Construct or Permit to Operate Application Filing Fee - \$230.41 per application.
2. Minimum triennial Permit to Operate reevaluation fee (except for motor vehicle fueling facilities) - \$250.
3. Annual Permit to Operate reevaluation fee for motor vehicle fueling facilities equipped with Phase II vapor recovery nozzles - \$14 per nozzle.
4. Additional reinspection fee for Phase II motor vehicle fueling facilities failing the first inspection - \$14 per nozzle per additional inspection.
5. Fee for change in Production rate - \$250 per permit.
6. Fee for Administrative Change - \$250 per permit.
7. Fee for Cooling Towers with Hexavalent Chromium compliance plan - \$310 per compliance plan submitted.
8. Fee for Cooling Towers with Hexavalent Chromium with delayed compliance plan date - \$100 per delayed compliance plan submitted.
9. Annual Atmospheric Acidity Protection Program (AAPP) Administrative Fee - \$350 per stationary source.
10. Annual California Clean Air Act (CCAA) Administrative Fee - \$350 per stationary source.
11. Fee for Written Determination of Permit Exemption - \$350 per determination.
12. Hearing Board:
  - a. Filing Fee (Fixed Fee Permit):
    - Emergency Variance: \$60 if the requested length of the variance is fifteen (15) days or less; \$120 if the requested length of the variance is greater than fifteen (15) days.
    - Interim Variance \$140
    - 90-day Variance \$750
    - Regular Variance \$750

Additional Fee for Regular Variances:

Regular Variances: If the requested length of the variance is greater than three (3) months, the petitioner shall pay an additional fee of \$275 for each month or portion thereof over three (3) months that the variance is requested.

b. Filing Fee (Cost Reimbursement Permit):

-	Emergency Variance	\$60
-	Interim Variance	\$345
-	90-day Variance	\$345
-	Regular Variance	\$345

c. Permit appeal filing fee - \$400 per petition.

d. Permit appeal hearing time after first hearing day, for each two hours or portion thereof - \$200.

e. Excess emissions fee shall be \$160 per ton.

**SANTA BARBARA COUNTY AIR POLLUTION CONTROL DISTRICT  
RULES AND REGULATIONS SUBSCRIPTION LIST AND ORDER FORM  
FOR CALENDAR YEAR 1994**

*(Prices subject to change. Orders must be prepaid.)*

✓	ANNUAL SUBSCRIPTION SERVICE	PRICE
1.	Updates to Rules and Regulations (for calendar year of subscription)	\$20.50
2.	Updates to Rules and Regulations on diskette* (3.5 inch, Word Perfect 5.1)	\$15.00
3.	Public Notices of Workshops and Board Hearings on District Rules	\$26.00
4.	Copies of Draft and Proposed Rules	\$31.00
5.	Staff Reports on Proposed District Rules (Contains Proposed Rules)	\$51.50
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7.	Updates to federal New Source Emission Standards, and National Emission Standards for Hazardous Air Pollutants	\$20.00
<b>PUBLICATIONS</b>		
8.	Copy of District Rules and Regulations (does not include rule updates, please subscribe separately)	\$26.00
9.	Copy of District Rules and Regulations on diskette* (does not include rule updates, please subscribe separately). (3.5 inch, Word Perfect 5.1)	\$10.00
<b>RULE BOOK BINDERS</b>		
10.	Looseleaf notebook with Regulation dividers, cover and spine imprinted with SBCAPCD - Rules and Regulations.	\$11.00
<b>OTHER</b>		
11.	"On The Air", a bimonthly newsletter published by the Interagency Review Section of the Santa Barbara County Air Pollution Control District	FREE
<b>TOTAL</b>		

\* Hard copy should be used as your primary reference for APCD Rules and Regulations.

☐

Payment exemption requested for Publications (items 8 and 9). Available free of charge to public and nonprofit agencies only.

☐

Payment exemption requested for annual subscription services (items 1-5). Available free of charge only to other air pollution control agencies on a reciprocal basis.

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# EXHIBIT C

## LETTERS OF SUPPORT

C.1 Santa Barbara Air Pollution Control District



Santa Barbara County  
Air Pollution Control District

April 20, 1994

Mr. Roger Martin  
Director, Western Commercial Space Center  
3865-A Constellation Road  
Lompoc, California 93436

Dear Mr. Martin:

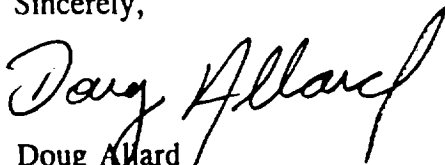
I want to express this agency's support for the "paperless" air permitting project conducted by the Western Commercial Space Center (WCSC). My staff has worked with WCSC in the initial stages of this program. The goals and objectives provided appear realistic and attainable while ensuring proper environmental review and conformance with APCD regulations. We are encouraged with the initial results and anticipate achieving a reduction of paperwork, errors and processing time as well as increased cooperation and communication between our offices. Furthermore, such a program can serve as a model for future applications to other sources, thereby increasing our efficiency and effectiveness to the community.

In order to continue, we estimate that our efforts will include the following activities for program development:

- \* review of calculations
- \* review rules and forms
- \* meetings and consultation with staff and WCSC
- \* trial permit demonstration and review

If you have any questions, please contact Mr. David Romano of my staff (805-961-8815).

Sincerely,

  
Doug Allard  
Air Pollution Control Officer

ENGR1...SUPERS\EVANS407.DJR